Playboy webmaster Eileen Kent says post simply and let your brand name do the rest. Page 61

Walgreen seeks Rx for stalled online prescription network. Page 63

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Intranets don't need to turn a profit, but "making up money spent" sure helps, says B. C. Hydro's Steve Whan

Liberty Financial breaks Web ground

▸ *Offers custom data, encryption security*

By Mitch Wagner

LIBERTY FINANCIAL COS. this week plans to announce a Web site that offers breakthrough features in personalization and security, *Computerworld* has learned.

The site will offer consumers and professional investors a custom view of financial data and investment options based on a personal profile, said analysts briefed on the project.

Liberty Financial would like to encourage repeat business by offering visitors the convenience of online banking and a World Wide Web site that presents them with the information and services they need most.

Liberty Financial also seeks to attract young investors, who are generally thought to be more computer-savvy and willing to use the Internet.

The site will make Liberty Financial a pioneer in a couple of ways. Customization features have been talked about in the past few months but not widely implemented.

Fingerprint Corp., a $2.5 billion

Liberty Financial, page 111

Liberty Financial Cos. Boston

- Assets: $47 billion
- Investors: 1.4 million
- 1995 sales: $1.03 billion

Portfolio: fixed, variable and indexed annuities; private and institutional accounts and 60 mutual funds

Source: Hoovers, Inc.

Intranet builders consider ad dollars

By Kim S. Nash

CHALLENGE THIS: You log on to the company intranet in the morning and see "Drink Coke!" scroll across the top of your browser window. Then you click your E-mail and are unpleasantly surprised by a bill from IS for online services.

Two controversial ideas are emerging for funding intranets and both are peppered with political implications.

One is that mainframe mainstay, the chargeback. The other one is — believe it or not — advertising.

Pressure to show their worth has made some information systems managers open to running ads on their intranets in much the same way ads scroll across the tops and bottoms of World Wide Web pages.

First Chicago NBD Corp., for example, is considering writing

Intranet, page 28

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A WORD TO THE GROUPWISE

Novell prepares bug fix for Version 5.0 of groupware. Page 3

Gigabit reality

GIGALABS TO SHIP FIRST GIGABIT ETHERNET SWITCH. PAGE 6

Virus fixes will trail Office 97

By Sharon Machlis

YOU CAN BUY Microsoft Corp.'s Office 97 suite today, but it will be tough to find virus protection to match. Most antivirus software on the market can't spot viruses written in Office 97's new macro file format.

Third-party antivirus software makers are scrambling to release updates that can scan the Office 97 suite for infections. That's because Microsoft didn't share information about the new macro capabilities in Office 97 before releasing the product (CW Jan. 20).

"This is causing considerably more problems for antivirus vendors than previous file formats," said Graham Cluley, a consultant at Dr. Solomon's Software, Inc. in Burlington, Mass.

Like most antivirus vendors, Dr. Solomon's expects to have Office 97-scanning software

Office 97, page 111

Guaranteed frame relay on tap

By Kim Girard

SEVERAL FRAME-RELAY carriers are beta-testing services that will give corporate users guaranteed service levels for high-priority traffic — at premium prices.

In addition to guaranteed bandwidth, frame-relay users are clamoring for more control over and proof of network performance, including packet transfer speed and cell loss rate.

Several carriers, including Sprint Corp. and Nynex Corp., are expected to begin offering more extensive service-level guarantees this year.

Frame relay, page 16

It's a taxpayer's worst **nightmare** and an ambitious **CIO's** dream come true.

By Thomas Hoffman

L.A. County CIO Jon Fullinwider

The Los Angeles County government spends more than **$450 million** on information technology each year, placing it in the same **IT spending** league as large corporations such as Rockwell

L.A. County, page 111

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UP FRONT

Special interests

First it was the Internet. Then the internal network called the intranet. Now "extranets" are hot — they've sort of a hybrid of the first two. If the pundits are to be believed, special interests are going to slice the Internet pretty thin from here. Pretty soon every special interest group will have an intranet of its own. Here's a quick guide to some of the projects under development:

- **Operanet:** For lovers of wine, libretos and big old Viking hats. Presentation is quite loud and long; discussion threads run three hours or more. And you can't understand what anyone's saying.
- **Contranet:** Covert CIA site dedicated to destruction of Marxist Central American domain name registry agency. Easy to surf to, but you quickly get so deep into it that you can't find your way back out.
- **Mantranet:** Very laid-back discussion groups. Lots of smiley faces. You'll find peace here. www.mmmmmmmmmmmmmm
- **Cassandranet:** Lies. All lies.
- **Opralnet:** For fans of daytime talk shows. Content appears to be eclectic, but frequent ads are annoying. Server expansion and contraction is topic of endless discussion threads.
- **Agranet:** Destined to be the hit of the farm belt. Check out Java soybean price-tracker applet and the virtual thresher auction. Heavily subsidized by the U.S. government.
- **Lycranet:** All things Spandex.
- **Mothranet:** Discussion groups for fans of '60s Japanese films about giant insects. A bit specific, but topics are often interesting, though words don't match authors' lip movements.
- **Re-ranet:** Umbrella network for hundreds of sites dedicated to rabid sports fans. Heavily visited by business users during work hours.

Pretty soon every special interest group will have an intranet of its own

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT

"It's all here, Warden. Routers, hubs, switches, all pieced together from scraps found in the machine shop. I guess the prospect of unregulated telecommunications was just too sweet to pass up."

E-mail Rich Tennant at thesywave@tiac.net

County outsourcing brouhaha may lead to legal precedent

By Thomas Hoffman
WHITE PLAINS, N.Y.

WESTCHESTER COUNTY is the setting for a highly politicized outsourcing squabble that is affecting the livelihoods of more than 100 IS staffers.

A judge here is expected to decide today whether a county executive had the right to outsource the county's entire information systems department.

"People think civil servants are fat, dumb, happy — and overpaid," said Luigi Martino, who until Jan. 1 was a $72,000 systems analyst for Westchester County. "A politician says a private company can do it cheaper, and that's something taxpayers can rally around."

That private company is IBM, which won the seven-year, $85 million contract that took effect this month.

The case is being watched closely because it could set a precedent in the public sector, where outsourcing has been "a political football," said Tom Davies, a vice president at Federal Sources, Inc., a market research firm in McLean, Va.

The battle pits Westchester County executive Andrew O'Rourke against the employees' union, which pitched an eleventh-hour alternative, and the county's Board of Legislators, which filed suit after O'Rourke signed the outsourcing contract with IBM. The board claimed O'Rourke didn't have the authority to outsource the department.

Caught in the middle are 109 IS employees, about half of whom agreed to work for IBM. The rest are at least temporarily unemployed, pending the decision by New York Supreme Court Justice Nicholas Colabella.

Westchester County executive rejected an alternative plan from employees

Martino, who collected his first unemployment check last week after 23 years with the county, said IBM declined to specify what his job function would be, where he would work and what his salary would be.

"We told [IBM] we wouldn't sign anything until we got [approval] by the legislators," Martino said.

"It's been hell living like this," said a 12-year Westchester County data center operator who has agreed to continue working for OAO Corp., a Chicago-based subcontractor that has been running the bulk of the county's IS operations for IBM.

The data center operator, who accepted a $3,000 pay cut, has been told that his group will relocate to Southbury, Conn., an hour-and-a-half commute from White Plains. That presents a hardship for the single parent.

O'Rourke said all of the county's 109 affected IS employees were offered jobs with IBM, but current and former staffers said that is a matter of interpretation. An IBM spokesman last week deferred to O'Rourke on the issue of hiring, but the company did say that in all outsourcing agreements, some people elect not to accept new jobs for a variety of reasons.

Regardless of how the court rules this week, nearly everyone expects the losing party to appeal and carry on the fight for as long as two years.

CA adds to Jasmine, delaying shipment

By Craig Stedman

COMPUTER ASSOCIATES International, Inc. has delayed shipment of its Jasmine object database until midyear, six months later than the December release date it originally promised.

The plans changed after beta testers asked for more extensive Java support than CA had slated for Jasmine's first release, said Dustin McNabb, marketing manager for CA's database.

Chuck Lewis, CEO of Financial Technologies International, Inc. in New York, said the wait shouldn't affect his plans for releasing Jasmine-based financial applications late this year. "I still like the looks of what's coming," especially with the accelerated Java support, he said.

But Wayne Eckerson, an analyst at Patricia Seybold Group in Boston, said the delay could make it "much harder for CA to gain momentum" against the object/relational databases that are emerging from Informix Software, Inc. and Oracle Corp.

McNabb said CA is looking at adding into the revamped software a set of Java extensions that would provide direct access to Jasmine.

The original beta release required users to write proprietary database calls and then use an interface to map them into Java.

CA also is adding new OLE controls and other utilities to boost performance and make the database's object development environment easier to use, McNabb said.

The company in February plans to start a wider beta program aimed at corporate users, in addition to the software vendors that have used Jasmine so far, McNabb said.

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- **SERIOUS SECURITY** Nothing is foolproof — but reasonable Internet security can be had, according to a recent implementer's roundtable. However, it takes a commitment to practice the fundamentals — establish a good policy, follow the policy and periodically revisit the policy. (www.computerworld.com)
- **IS MAVERICKS** Are you tempted by contract consulting opportunities? Veteran consultant Fred Parker shares his observations on the rewards and frustrations of going it alone. (www.computerworld.com/careers)

RS/6000 aimed at Web

▸ *Bundled software will ease setup of Internet applications*

By Tim Ouellette

IBM NEXT MONTH will try to make its RS/6000s more attractive as World Wide Web servers by bundling software that simplifies installation and management.

Several announcements from IBM's Austin, Texas-based RS/6000 division will target business users looking for a way to get Web applications working without a lot of the setup headaches and without hiring Unix specialists.

"[IBM is] trying to sell the RS/6000 to a whole new group of people — those that want a Web presence but who are not familiar with Unix," said Susan Donohue, president of Donohue Consulting, Inc. in Washington.

UPCOMING ANNOUNCEMENTS

IBM officials confirmed that the company on Feb. 11 will announce that it will take the following steps:

- Ship a free uniprocessor copy of Lotus Development Corp.'s Domino 4.5 with every new RS/6000 that runs AIX 4.2. Also, every client copy of AIX 4.2 will ship with a free Notes client license.
- Add browser-based installation and Web site management capabilities to the RS/6000. Users can get Netscape Communications Corp.'s browser-based LiveWire management software installed on the RS/6000.
- Add Netscape's Catalog and Directory Server as options that can be preinstalled and configured on new RS/6000s.
- Provide free database integration software called Net.Data with each RS/6000. Net.Data keeps connections between databases open to prevent the open-and-close delays found in normal data requests.

BOOST NEEDED

The moves are important because the middle and low end of the RS/6000 line need a boost after lagging in sales last year. IBM figures that adding popular Internet capabilities is a way to grab more users at that end of the market.

1997 RS/6000 PLANS

February
- Bundle free versions of Domino 4.5
- Add Netscape's Catalog and Directory Server bundling options
- Add Web-based installation and Web site management tools

Spring
- Interim release of AIX to improve SMP performance

Late 1997
- AIX 4.3, 64-bit operating system upgrade

Also, the addition of Domino is expected to appeal to business users because it combines group collaboration applications with Web-based access. For example, Wake Forest University replaced its Hewlett-Packard Co. Unix servers with RS/6000s to run Domino and Notes across the Winston-Salem, N.C., campus, said Jay Dominic, IS director at Wake Forest.

But selling more RS/6000s may take more than bundling new options. An IBM spokesman confirmed that the Armonk, N.Y., company suffered product shortages, amid high demand, for some of its low-end RS/6000 server models late last year.

Correction

The chart titled "Apple's cash crunch" on page 16 of the Jan. 20 issue was largely inaccurate. With the exception of a $180 million loan due in the first half of the year, none of the items listed in the chart under short-term debt qualify as short-term debt. Hence Apple's actual short-term debt is $180 million, not $1.03 billion. Under long-term debt, Apple's "loans and convertible bonds due 2004" was incorrectly listed as $3 million; it should have said $300 million. Apple's long-term debt is actually $950 million, not $664 million. Moreover, the "Total debt" number isn't $168 million as stated, but $1.13 billion. The accompanying story headlined "Debt burden could weigh down Apple" also incorrectly stated that the company has $1 billion in debt due in the first half of the year. *Computerworld* regrets the errors.

GROUPWARE

Novell tries to squish a few bugs

▸ *Some GroupWise Internet features will be delayed until summer*

By Barb Cole

BUGS IN GroupWise 5.0 are forcing Novell, Inc. to release a service pack next month to correct flaws and delay some planned Internet features until summer.

The company will ship a release next month, which may be called Version 5.1, largely made up of performance enhancements and bug fixes, the company confirmed last week.

"Anybody who has messed with [GroupWise] 5.0 will tell you there are issues," said Frank Manci, network technical manager at Colonial Savings F.A. in Fort Worth, Texas.

ROUGH UPGRADE

Novell shipped GroupWise 5.0 in September, and users have faced hurdles moving document libraries and message post offices from the earlier version to the newer release.

Those problems are expected to be remedied in next month's fix.

Novell officials had previously said the company would ship a first-quarter release of GroupWise that added support for several Internet protocols — including Post Office Protocol 3, Internet Message Access Protocol 4 and Lightweight Directory Access Protocol — which would allow the product to better integrate with the World Wide Web.

But company officials said those features probably won't appear until July.

SLOWDOWN

The problems have slowed some migrations to GroupWise 5.0, users said.

Ken Ainge, information systems manager at KTVX-TV in Salt Lake City, said he had migrated about half of his users from GroupWise 4.1 to GroupWise 5.0 but has postponed any more migrations until the upgrade becomes available.

Analysts pointed out that although GroupWise is a fifth-generation product, the 5.0 release was the first to integrate messaging, document management and scheduling in a client/server architecture.

"You can't go out there with brand-new technology and not take a few hits," said Ron Rassner, vice president of Creative Networks, Inc., a market research company in Palo Alto, Calif.

Novell issued a service pack in December for GroupWise 5.0 that fixed some of the bugs related to product stability. However, that release wasn't widely distributed. The company is now offering that software to customers through sales and support channels.

GROUPWISE PRIORITIES

1. Correct problems with moving document libraries
2. Ease migration of GroupWise 4.1 post offices

Keeping work, family in balance

Work can be hard. And dealing with family emergencies and striving for quality time with your family can make life tougher. Although company policies may cover all departments, there are some ways information systems managers, such as Abbie Brown (pictured), chief information officer at Unum Life Insurance Company of America, can help staffers balance work and family life.

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Novell gears up for another joust with NT

By Laura DiDio

AFTER THREE tumultuous years, Novell, Inc. is finally ready to take on its biggest challenge: stanching the well-documented erosion of NetWare's installed base by rival Microsoft Corp.'s Windows NT Server.

Novell President Joseph Marengi last week outlined the networking vendor's plans, which include jump-starting its new IntranetWare offering and filling in some glaring gaps in its product line (see chart).

At its annual Brainshare technical conference in March, Novell is expected to unveil its Border Services package of Internet services, which will work with IntranetWare, Unix or NT servers. Novell also will use the conference to preview its advanced object-oriented file system, clustering technology and long-awaited native TCP/IP support.

"We won't stop Windows NT Server from being successful," Marengi said. "It's Novell's job to ensure that we provide [our customers] the best support for a multiplicity of server operating system environments."

Not everyone is convinced.

Kristin Marks, a senior analyst at Networks Are Our Lives, a consultancy in Sherman, Conn., said many businesses now regard NetWare as a "relic of networks past."

IntranetWare is built on Novell's NetWare 4.x operating system. It includes file and print services, World Wide Web and intranet server software with built-in Novell Directory Services (NDS) and a C-2 firewall security package. The software was introduced last fall to tepid reviews. Marengi claimed that Novell shipped 250,000 copies of IntranetWare last quarter.

"IntranetWare works wonderfully for us," said Eric Van Blarcum, manager of information services at Sundance Resort in Sundance, Utah. "I also like the fact that Novell has added technical consulting free to the basic package."

NICHE PLAYER

Marengi said Novell isn't trying to compete head-on with Windows NT — particularly with its Web server strategy. "We won't get into the Web browser market. We'll be a specialty Internet player providing services, like firewall security, that leverage the directory," he said.

Another strategy Novell will stress with users is its new cross-platform push for NDS. It calls for Novell to give away the NDS source code free to OEMs and third-party developers.

But applications support — not NDS — is the driving force for users such as Rod Samuel, a senior engineer at Lockheed Martin Tactical Aircraft Systems in Fort Worth, Texas. For that reason, he isn't upgrading to IntranetWare. "Our Windows-based desktop applications are designed to work best under Windows NT, and that fact pretty much dictates our [network operating system] plans," Samuel said.

Keith Thibodeaux, LAN manager at United Companies Lending Corp. in Baton Rouge, La., agreed. His firm will use IntranetWare for file and print but will install NT Server for its intranet and Internet access. He cited the close coupling among Microsoft's desktop- and server-based applications and its Web and intranet services. "NT 4.0 has made it easy to use the Web browser to query our in-house SQL Server databases in two hours or less," he said.

BRAINSHARE BONANZA

Novell products and enhancements slated for March preview

Border services: A bundle of Internet services, including proxy and C-2 firewall services and caching functionality for efficient access to Web-based data

Clustering capabilities for IntranetWare

Native TCP/IP support for NetWare and IntranetWare Version 2

Object-oriented file system for IntranetWare Version 2

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First Gigabit Ethernet switch to ship

By Bob Wallace

THE WAIT TO evaluate Gigabit Ethernet switches is drawing to a close for information systems managers. Start-up GigaLabs, Inc. is gearing up to ship what could be the networking industry's first Gigabit Ethernet switching system, *Computerworld* has learned.

The Sunnyvale, Calif., vendor said it will soon ship the GigaStar 3000, a switch designed to break up current bottlenecks and address projected bandwidth problems in backbone networks.

"We haven't set a specific date," a GigaLabs spokesman said.

Priced at less than $2,500 per port, the fixed-configuration GigaStar 3000 uses a 16G bit/sec. backplane, which is the heart of a modern switch, and delivers 1G bit/sec. of throughput to each of its eight ports. GigaLabs also sells 1G bit/sec. adapter cards for servers and workstations. The switch could cost a total of $20,000. Other vendors haven't detailed configurations and pricing.

Although 1G bit/sec. Gigabit Ethernet isn't yet standardized, large users eyeing their future backbone networks have expressed a strong interest in analyzing the heavily hyped high-speed technology.

Some forthcoming Gigabit Ethernet switches will support switched and Fast Ethernet. The GigaStar 3000 will support only Gigabit Ethernet speeds.

Networking superpowers and start-ups alike have pledged to come out with products this year.

"We see Gigabit Ethernet as a strong future option that we're excited to consider because of its huge capacity for our backbone network," said Ron Rimmer Jr., a network manager at Wake Forest University in Winston-Salem, N.C.

"There's some value to early products, but it'll still be a good nine to 12 months before users will see products from mainstream [vendors]," said Skip MacAskill, an analyst at Gartner Group, Inc. in Stamford, Conn. It will take until mid-1998 to produce a Gigabit Ethernet standard, according to the Gigabit Ethernet Alliance, a group formed to drive deployment of the technology.

For users wondering about migration issues, GigaLabs President Kon Leong promised, "Customers can count on an easy migration to a completely interoperable Gigabit Ethernet solution when the specification is finalized."

Back-end costs could cancel out potential network computer savings

▸ *Gartner report offers up cautious optimism*

By April Jacobs

SUPPOSE CAUTIOUS.

That seems to be the conclusion of a report on network computers just released by Gartner Group, Inc. in Stamford, Conn., that covers the potential ups and downs of the latest rival to the PC.

The report, "Network Computer: Panacea and Pandora's Box," offers some alluring savings predictions, which it then hedges by ticking off a series of potentially costly issues connected to network computers that could actually cost users money in the long run.

Indeed, although network computers may prove as much as 41% less expensive than PCs, companies considering a wholesale trade-off could instead cut costs at least 25% just by doing a better job of managing what they already have, according to Gartner.

Moreover, a gaggle of back-end issues could wipe out chunks of savings realized by purchasing network computers instead of PCs.

For example, by standardizing their software and hardware, companies could gain many of the benefits purportedly offered by the as-yet-unavailable NetPC — Microsoft Corp. and Intel Corp.'s hybrid network computer/PC — according to Gartner.

Companies can also centralize software distribution and management, avoiding another money pit.

The result, according to Gartner estimates, is that the annual networking cost of a networked PC running Windows 95 is about $682 per user, whereas a network computer/server configuration costs about $882 per user per year.

Client administration, on the other hand, is much less, with a PC costing about $945 per user annually and a network computer costing only $460 per user annually.

NC SAVINGS

The cost of a mid-size Pentium-based PC with 32M bytes of memory and a 10-byte hard disk running Windows 95 is $10,242 per year. By substituting the following NCs, users can find savings:

Type of network computer	Potential savings
Oracle, IBM*, Sun's thin clients	41%
Microsoft/Intel's NetPC	26%

*The only one shipping in volume

Source: Gartner Group, Inc., Stamford, Conn.

THREE CLASSES

The report takes what Gartner calls "six different technologies all being called the same thing" and estimates the savings potential of three classes of network computers, defined as follows:

- The NetPC, which could offer savings of 26%, is a hybrid network computer/PC device that supports a large hard drive for loading applications but no floppy or CD-ROM drives. Key weaknesses are that it will force users into heavy dependence on the Wintel alliance and that its hardware requirements may increase its cost in comparison with true network computers.
- An essentially client-based class of network computers offered by Sun Microsystems, Inc., Oracle Corp. and IBM NC, which could save up to 41%. This device requires Java-based buffer applets to complete tasks on the client. The downside is that these boxes are heavily dependent on the network: If it is down, users are down. Only IBM's box is now shipping in volume.
- A server-centric network computer that could offer savings of up to 33%. It is an intelligent display device that accesses and executes applications on a server. It is the most available model of network computer right now. Suppliers include Citrix Systems, Inc., Wyse Technologies, Inc. and HDS Network Systems, Inc. The downside of this device is that servers are expensive and support only limited numbers of users, who must rely on them on a full-time basis.

NETWORK COMPUTERS

NO STANDARDS

Two areas that reflect the infancy of client- and server-based network computer models are the lack of mainstream application support and the still-emerging set of standards. The boxes can bring higher savings but offer limited functionality.

Gartner didn't look at network computers as a whole as an alternative to PCs, said Dave Cappuccio, an analyst at Gartner. He explained that thin clients, or network computers, access Windows-based applications from servers, which could limit availability of applications or drive up costs because of the need for additional server requirements.

Indeed, the cost of infrastructure support is a potential problem that undermines a transition to a network computer environment, Cappuccio said.

But, he said, most vendors, including IBM, are pitching the network computer server or client boxes not as a replacement for the PC but as terminal replacements and limited-function computers for singular purposes such as call centers and help desks.

However, these boxes in some cases also require far more comprehensive network and server support — a costly hardware issue and critical support issue that companies must take into consideration, according to Cappuccio.

Mike Farrell, manager of information systems at Automated Data Processing, Inc. in Roseland, N.J., said he isn't troubled by network computer migration costs because his upgrade costs to run on Windows NT would be comparable.

"I will probably be able to replace my Windows 3.1 PCs with [network computers] at about the same cost as upgrading them to NT. And if I can realize benefits [such as savings in administration costs] at the same cost, then it's worth it," Farrell said.

Early adopters enthusiastic

Users such as Sears, Roebuck and Co. and Simmons Co. said they like the overall network computer concept of centralized management and administration.

Sears, in Hoffman Estates, Ill., plans to take advantage of the fact that network computers allow centralized software distribution and make administration easier. That works well for Sears because the company is standardized and centralized.

This spring, Sears will begin deploying more than 2,000 network computer client devices from Boundless Technologies, Inc. in Austin, Texas, in its automotive centers. Also in Sears' favor is the fact that it is replacing diskless PCs, which will make the transition easier.

Kent Polzin, director of technical operations at Atlanta-based Simmons, is considering IBM's Network Station and has a similar attraction to the boxes.

"I put a terminal out there, and I never worry about it — if something breaks, I replace it. I don't have to think about whether someone loaded a new copy of 'Doom' or if it's a blown directory or having to do data recovery from a bad hard drive," Polzin said.

However, Polzin said the devices won't replace all PCs. "Not even in my wildest dreams do I expect [network computers] to be all things to all people. If I can get 20% of my seats to be [network computers], that translates into less support," he said.

— April Jacobs

Oracle vs Informix

The key feature of a universal database servet is the ability to manage any type of data - tables, text, audio, video, etc. The key question is: if a large number of datatypes are not supported natively by the Universal Server, how easy and safe is it to extend that server with new datatypes?

	Oracle Universal Server	Informix Universal Server
Tables	**Native Support**	**Native Support**
Text	**Native Support**	**Third Party Datablade**
Audio	**Native Support**	**Third Party Datablade**
Video	**Native Support**	**Third Party Datablade**
Spatial	**Native Support**	**Third Party Datablade**

Oracle® Universal Server® has powerful native support for most every datatype. In contrast, Informix requires you to program or buy third party developed datatypes that they call datablades. Amazingly, a mistake in the datablade code can "shut down the entire servet" and may cause you to lose all your data, accotding to Michael Stonebraket, Chief Technology Officer at Informix*. What? Are you kidding?

So if you're a gambler, call the Informix datablade casino in Vegas—1-800-GOOD-LUCK. Or, if you want to manage all types of data and keep it safe, call Oracle at 1-800-633-1071, ext. 11118, or find us on the Web at http://www.oracle.com

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All other company and product names are the trademarks of their respective owners. *Computerworld, October 24, 1996

Database rivals vie for Baan users

By Randy Weston

USERS WHO SAW a recent Oracle Corp. announcement about a deal to upgrade Baan users to Oracle's database should hold their sighs of relief. Officials at The Baan Co. deny the deal was made.

The Netherlands-based client/server software vendor instead is embedding Informix Software, Inc.'s database into its Baan IV application package. Informix is Oracle's chief rival in the database market.

But before Baan could inform its customers of the Informix plans, Oracle announced it was offering an upgrade deal of its own to Baan's customers.

Despite a large Oracle presence in its installed base, Baan made the deal with Informix because Baan plans to abandon its proprietary TriBase database and wants the Informix product to fill the gap.

Baan's alliances hold great interest for Oracle users because the overlap between the two companies' customer bases is significant. Of Baan's 300 North American customers, approximately two-thirds use Oracle databases. The rest use a variety of databases, with Informix leading the pack.

"From a user-community perspective, I'm not worried, because Baan realizes that it's a business opportunity to support Oracle as well," said Michael Abbey, vice president of the International Oracle User Group.

Also, Baan and other applications vendors are turning to Informix out of frustration that Oracle won't open up its database server to give them the same high-level integration that Oracle has with its own applications, according to Bruce Richardson, an analyst at Advanced Manufacturing Research, Inc. in Boston.

Still, other analysts said market realities will force the two companies to quickly forgive and forget.

"Both Baan and Oracle still have to run businesses. Baan is one of the top players in the package applications field, so they are going to have to deal with each other," said Bobby Cameron, an analyst at Forrester Research, Inc. in Cambridge, Mass. "The bottom line is that users want to see more databases available for packages — not [fewer]."

Hal Kaiser, a Baan systems integrator at Lostirs, Inc. in Toronto, said the Informix deal gives Baan users two solid database platforms from which to choose.

"Neither Informix nor Oracle fits all the needs for all my clients," Kaiser said. "The better choice is whatever fits."

SAMPLE OF FEATURES

Oracle's Universal Server	Informix's Workgroup Server
Partition views	Asynchronous I/O
Bit-mapped indexes	Disk mirroring
Hash joins	Cost-based optimizer
Asynchronous read-ahead for table scans	Transaction logging
Enterprise transaction processing	Read-ahead architecture
Web integration	Cascading deletes

Informix charges Oracle with theft of trade secrets

By Elizabeth Heichler

INFORMIX SOFTWARE, INC. has filed suit against Oracle Corp. over potential theft of trade secrets stemming from Oracle's hiring of 11 employees from the Informix product development laboratory in Portland, Ore.

The group responsible for the development of Informix's Dynamic Scalable Architecture kernel is based in Portland, said Don DePalma, a senior analyst at Forrester Research, Inc. in Cambridge, Mass.

The lawsuit charges Oracle and a former Informix employee with misappropriation of trade secrets and unfair competition. Informix, in Menlo Park, Calif., seeks injunctive relief and punitive amages. Oracle declined to comment on the suit.

"Our primary concern is that we protect Informix's intellectual property and trade secrets from Oracle," said Phil White, Informix chairman and CEO, in a prepared statement. "This is an extraordinary public admission from Oracle that it is behind in database technology and a blatant act unheard of in the software industry. They could not develop competitive products, so they had to buy Informix employees."

In Hong Kong last week, Oracle Chairman and CEO Larry Ellison had boasted of the hiring and referred to Gary Kelley, one of several vice presidents in the product development organization at Informix. The suit charges Kelley with breach of contract, breach of fiduciary duty, unfair competition and misappropriation of trade secrets.

In court actions on Jan. 23, Informix was granted a temporary injunction against Oracle and the former employees. The injunction reaffirmed that the employees may not divulge trade secrets or solicit Informix employees for positions at Oracle. Another hearing is slated Feb. 7.

Oracle and Informix are ranked first and second, respectively, in database software market share, according to International Data Corp. in Framingham, Mass.

"Informix has risen over the last several years from third choice behind Oracle and Sybase to a decided contender for the second-place slot," DePalma said.

Heichler writes for IDG News Service in Boston.

SHORTS

Sybase turns a profit

Sybase, Inc. climbed back into the black in the fourth quarter last year, after the company lost money in each of the first three quarters. The Emeryville, Calif., company reported a fourth-quarter profit of $5.1 million, down 15% from the $6 million it earned in the fourth quarter of 1995. Revenue rose marginally to $267.8 million from $267.3 million in the fourth quarter of 1995. All told, Sybase lost $79 million last year.

Trio backs IP switching

Networking heavyweights 3Com Corp., IBM and Cascade Communications Corp. will announce plans tomorrow to back a common specification for an advanced switching scheme designed to break bottlenecks in user and service provider networks. IP switching has been available in proprietary versions from several vendors but has lacked an industry consensus standard. That has prompted little user interest, analysts said. 3Com, IBM and Cascade will go up against Cisco Systems, Inc. and Ipsilon Networks, Inc., which have competing technologies.

Last Mosaic version released

The National Center for Supercomputing Applications has released the last planned version of its Mosaic World Wide Web browser. Mosaic 3.0 has a split-window interface that displays Web pages in one window and provides eight interchangeable views in the other, including navigation history, Web page source code and uniform resource locator hot list management. Users can download Mosaic 3.0 for Windows 95 and Windows NT at www.ncsa.uiuc.edu/SDG/Software/mosaic-w/releaseinfo/download.

Apple ships Mac OS 7.6

Apple Computer, Inc. last week shipped Mac OS 7.6, the first step in its plan to support two operating systems. The revision, which supports all PowerPC-based machines and Macintoshes, supports the OpenDoc application development environment and Cyberdog, which gives desktop applications Internet access. Apple is also developing Rhapsody, an operating system that melds Next Software, Inc.'s application programming interface with Apple's defunct Copland operating system.

Browser for 386 PCs available

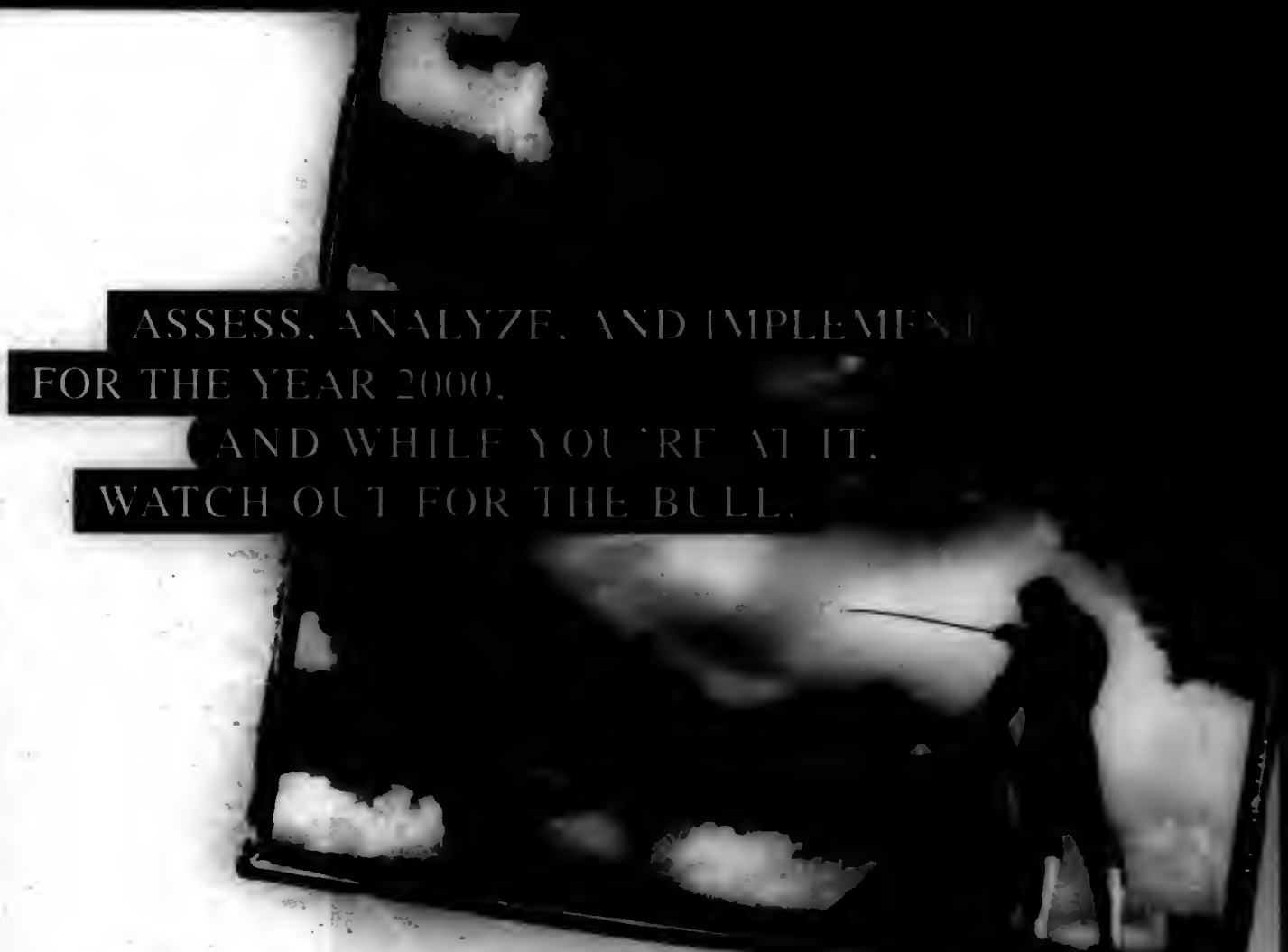
Microsoft Corp. last week released a new version of its Internet browser for Windows 3.1 and Windows NT 3.51. Internet Explorer 3.0a includes a 16-bit Java virtual machine, which makes it the first browser that can run Java code on a 386-based PC, according to Microsoft. The browser also supports Auto Proxy, a feature that lets information systems managers centrally manage all the Internet proxies at their site. The new browser is available at www.microsoft.com/ie/download.

Informix enters warehouse wars

Although it has been quiet on the data warehouse front compared with its rivals, Informix Software, Inc. plans next month to announce warehousing bundles that combine its databases and decision-support software with a menu of services and third-party tools. Packages aimed at vertical markets will follow by midyear. Informix officials said the company will detail plans to merge its parallel database technology and its object-enabled Universal Server next year.

FCC eyes Internet fee revamp

The Federal Communications Commission last week opened hearings on the controversial topic of revamping the access fees that long-distance providers pay to use local telephone networks. The FCC is also considering abolishing the access-charge exemption reserved for Internet service providers. The regional Bell operating companies say that Internet providers should foot their share of the bill because their traffic is taxing local switching capacity.



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Revolve/2000 can work with other Micro Focus tools to provide seamless access to host files from the PC.

First, Revolve/2000's Assessment and Analysis facilities help you quickly identify date occurrences in your applications and automatically locate the source code that needs modification. You'll see precisely which parts need to be changed and get an estimate of the cost and effort required to do it. That way, you'll be in a better position to decide what internal or external resources are needed to get the job done.

Next, its Implementation facilities let you either automatically convert two-digit date fields to four-digit fields or efficiently make source code modifications with its integrated editor.

Then use Revolve/2000's built-in syntax checker to find errors and help ensure clean compiles before testing, either on the mainframe or, more cost-effectively, on a PC with other Micro Focus application development tools.

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• Deal bolsters Netscape's groupware push

KPMG endorses Netscape suite strategy

By Justin Hibbard

NETSCAPE COMMUNICATIONS CORP. has won a major corporate endorsement from KPMG Peat Marwick, which will standardize its intranets on Netscape's new intranet client and server software.

The New York-based firm last week said it has licensed Netscape's Communicator client suite and SuiteSpot 3.0 server suite, due to ship this quarter, for 17,000 intranet users throughout 50 U.S. offices. Terms of the deal weren't disclosed.

The deal is an important vote of confidence for Netscape's plan, outlined in October, to enter the groupware and messaging markets. This strategy has met with some skepticism because the 2-year-old Mountain View, Calif., company, known for its Navigator World Wide Web browser, will have to compete in a space already dominated by Lotus Development Corp.

In this light, the KPMG deal with Netscape is particularly noteworthy, observers said, because it means KPMG will phase out Lotus' proprietary CC:Mail electronic-mail system in favor of Netscape's Message Server, which is based on Internet standards.

Allan Frank, chief technology officer at KPMG, stressed that messaging was only one factor in choosing Netscape.

"Really what we're doing is investing in a whole new infrastructure," Frank said. "We were early Lotus adopters. Now what we're doing is we have built a massive intranet."

KPMG's Allan Frank predicts his firm will gain influence in future Netscape projects

KPMG's intranet strategy stems from a long history of favoring distributed information retrieval systems over replicated information systems such as Notes, Frank said.

In addition to Netscape Message Server, KPMG will deploy Netscape's Collabra Server, Directory Server, Certificate Server and Enterprise Server, all of which are included in SuiteSpot 3.0. The servers will be integrated with a knowledge-management system based on Oracle Corp.'s Oracle7 database.

As part of its deal with Netscape, KPMG's information technology consulting business will resell Communicator and SuiteSpot 3.0 to its customers, deepening KPMG's investment in the software vendor's prospects.

NETSCAPE'S EAR

But the risk is worth it, Frank added, because he believes KPMG will gain influence over Netscape's future products. Netscape is a standard-setter in the Internet software market, especially in Web-based products.

The KPMG deal comes as Netscape prepares to report its fourth-quarter earnings this week. Securities traders last Tuesday responded to news of the deal by nudging Netscape's stock price up $1 in early trading. Bearish analysts in recent weeks have helped drive the stock price down to around $41, about two-thirds its value a month ago.

Analysts who pay close attention to a young company's quarter-to-quarter growth rather than its year-to-year growth are concerned that Netscape's fourth-quarter revenue will match rather than exceed its third-quarter revenue, several analysts said.

Nevertheless, analyst Daniel Rimer of Hambrecht & Quist, Inc. in San Francisco said his firm will stand by its recommendation to invest in Netscape.

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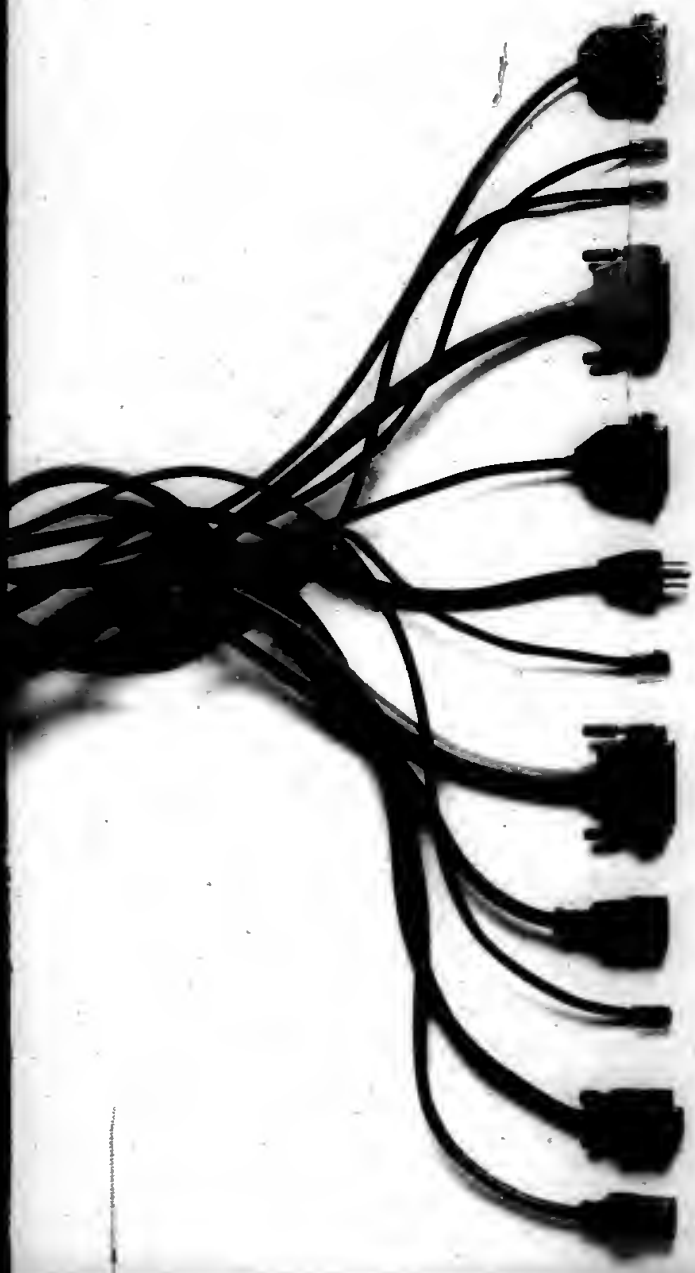

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Mac IS to PC brethren: A little respect, please

By Lisa Picarille and Julia King

SOME MACINTOSH IS managers and network administrators say they feel unvalued by their IS brethren.

Although it is nothing new for Macintosh users and administrators to feel defensive in a world in which Windows dominates the corporate environment, some Macintosh information systems workers said they often feel isolated from the rest of their organization.

"When our organization tries to get us to use some software that is only on Windows and I point out that won't work for our group, which is mostly Mac-based, they sort of grumble and say, 'There goes that Mac guy again,'" said Rex Sanders, an IS coordinator at the U.S. Geological Survey in Palo Alto, Calif. Sanders oversees 150 Macintoshes and 25 PCs.

You have the skills, but are they in demand?

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Windows 95	26%
Unix	15%
AIX	7%
DOS	6%
MVS	5%
Digital VMS	4%
Macintosh	2%
OS/2	2%

Survey of 5,000 IS managers; multiple responses allowed

Source: Computerworld 1996 Salary Survey

He attributes some of his feelings of isolation to his group's location — seven miles from the Geological Survey's headquarters in Menlo Park, Calif.

But even Macintosh users who aren't physically isolated said office politics play a large role in the schism between PC and Macintosh IS managers.

"PC network managers have their own perspective that what they do is difficult, and I would agree," said Bill Woodcock, secretary of the Apple Network Managers Association, a national user group.

So, given that it takes more people to support PCs, they are a bigger line item in the budget. That makes them feel more important," he said.

"The reason hard-core IS jocks have a problem with Mac OS skills is that traditionally you didn't have to be an IT person to deal with Macs," said an IS manager at a large West Coast biotechnology firm who asked not to be identified. That company has more than 6,000 computers, more than half of which are Macintoshes.

"There seems to be a feeling among IT people that making the complex simple is bad for business," he said. "IT folks should remember we are not in the computer business; we are in the business of helping our companies get their jobs done."

And some IS people said many of the skills they need to serve users are platform-independent.

"There are IS management duties that have to do with problems and people, not hardware and software. That experience is translatable to any environment," said Russ Chapman, director of information solutions at the Boston office of Jack Morton Productions, Inc., which creates corporate training materials on more than 200 Macintoshes.

But some prospective employers don't always see it that way. A Macintosh IS manager who asked not to be named said after getting negative feedback about his Macintosh work experience, he decided to omit it from his resume.

MORE THAN MAC

Cheri Comstock, a recruiter at The Focus Group, Inc., in Chapel Hill, N.C., said she still sees resumes with Macintosh experience. "I haven't seen people taking it off their resume. But in terms of the demand, they need to have some other kinds of experience also," she said.

Big companies "don't necessarily look down on Mac experience. It's more that people with Mac experience just don't meet the basic skill-set requirements for positions," said Jeff Christian, CEO of Christian & Timbers, a Cleveland-based recruiting firm.

& Steve Jobs' input could help Apple focus on business users. Page 49

Mac user group saved

▸ First-ever for-profit strategy will be watched closely by other groups

By Lisa Picarille

ONE OF THE nation's largest Macintosh user groups was saved from extinction earlier this month when it was purchased by a New York-based consulting firm that plans to turn the organization into a for-profit subsidiary.

In an unprecedented move, Charles River Computers (CRC), which specializes in consulting and services for financial organizations, acquired the 4,200-member New York Macintosh Users Group (NYMUG).

"I have not heard of this happening before," said Eagan L. Foster, president of the Association of PC User Groups, the Dallas-based umbrella organization for 490 users groups. "We are still considering the ramifications of this move. It will be very interesting to watch and see how this effects the entire user group community. Other groups that are having problems might see this as a way to survive."

BACK IN BUSINESS

Burdened by more than $100,000 in debt, NYMUG was forced to close its doors Nov. 1, almost a decade after its inception. But NYMUG is back in business as a for-profit group after inking a deal with CRC.

CRC approached the user group after company officials read press reports of the organization's demise. NYMUG previously rejected offers of corporate sponsorship out of concern that the group would become a mouthpiece for an Apple Computer Inc.-related vendor.

Because CRC has a considerable Macintosh-related consulting services business that isn't tied to any particular third-party vendor, the two groups thought it would be a good pairing.

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By linking up with CRC, NYMUG is going to be run more professionally, and the newly planned services are likely to draw more Macintosh professionals rather than just lovers of the Mac," said Tim Toal, a four-year NYUG member who is the manager of the electronic design center at Revlon, Inc. in New York.

"This gives us extra support in the Mac community and access to an additional pool of people in the city that can share their expertise," he said.

"We [CRC] have a vested interest in making sure the Mac is a vital and viable platform," said Vincent Salzillo, a longtime officer at NYMUG and director of Macintosh support at CRC.

MEMBERSHIP DRIVE

Similar to other user groups, which face declining membership in light of the glut of information and assistance available on the Internet, NYMUG is looking at additional services that aren't available on the Internet to increase membership.

To that end, CRC plans to assume NYMUG's debt and then pump an additional $150,000 into the group. Those funds will be used to form new services and special interest groups that target Macintosh business users, according to Paul Abel, a vice president at CRC.

By offering classes and hands-on services, such as training, that focus on Macintosh networking, the role of the Internet in corporations, intranet development and issues about cross-platform computing, CRC hopes to double NYMUG's membership to 8,400 within the next year, Abel said.

CRC, which plans to keep NYMUG's annual dues at $50, is also hopeful that NYMUG can turn a profit over the next 12 months, he said.

Mac lets users shrug off year 2000

By Lisa Picarille

THE HEAT of year 2000 software conversion issue hanging over the heads of most information systems shops is a nonissue for Macintosh users.

Some Macintosh users who said they have spent the past several months defending their choice of operating system noted that the one thing they won't be spending any time fretting over is the massive and costly year 2000 problem.

That's because Macintosh users simply aren't affected by a problem that is expected to force commercial and corporate developers to spend billions of dollars to make sure hundreds of millions of lines of code will run after 2000.

From desktop PCs to mainframes, the problem results from the many programs that represent years as two-digit numbers. The Macintosh was originally set up to handle dates differently. It uses a 32-bit value to store seconds beginning at 12:00:00 a.m., Jan. 1, 1904, and ending at 6:28:15 a.m., Feb. 6, 2040. The current Mac OS allows users to only enter dates up to Dec. 31, 2019, according to documents published by Apple Computer Inc., but that date is still almost two decades beyond what PC-based systems can handle.

INTO THE FUTURE

Apple officials have also said the firm's next-generation operating system, Rhapsody, will include a method for coping with any date between 30081 B.C. and A.D. 29940.

Corporate Macintosh users who are used to being derided by their PC brethren have found some vindication in the year 2000 issue.

"The Wintel guys keep coming over and asking what we plan to do about the year 2000 issue, and I keep telling them it doesn't affect the Mac," said an IS coordinator at a large West Coast biotechnology firm who asked not to be identified. "And they keep coming back and saying, 'Are you sure about that?' And I reiterate that it's just not an issue. They walk away in disbelief.

"I know they'll be back trying to find something that will affect us," he said. "[They will ask,] 'What about cross-platform compatibility?' or, 'How will it be handled in [Rhapsody]?' It's annoying, but secretly I find it gratifying."

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That's because Macintosh users simply aren't affected by a problem that is expected to force commercial and corporate developers to spend billions of dollars to make sure hundreds of millions of lines of code will run after 2000.

From desktop PCs to mainframes, the problem results from the many programs that represent years as two-digit numbers. The Macintosh was originally set up to handle dates differently. It uses a 32-bit value to store seconds beginning at 12:00:00 a.m., Jan. 1, 1904, and ending at 6:28:15 a.m., Feb. 6, 2040. The current Mac OS allows users to only enter dates up to Dec. 31, 2019, according to documents published by Apple Computer, Inc., but that date is still almost two decades beyond what PC-based systems can handle.

INTO THE FUTURE

Apple officials have also said the firm's next-generation operating system, Rhapsody, will include a method for coping with any date between 30081 B.C. and A.D. 29940.

Corporate Macintosh users who are used to being derided by their PC brethren have found some vindication in the year 2000 issue.

"The Wintel guys keep coming over and asking what we plan to do about the year 2000 issue, and I keep telling them it doesn't affect the Mac," said an IS coordinator at a large West Coast biotechnology firm who asked not to be identified. "And they keep coming back and saying, 'Are you sure about that?' And I reiterate that it's just not an issue. They walk away in disbelief.

"I know they'll be back trying to find something that will affect us," he said. "[They will ask,] 'What about cross-platform compatibility?' or, 'How will it be handled in [Rhapsody]?' It's annoying, but secretly I find it gratifying."

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Users shoot holes in warehousing tools

By Craig Stedman
San Diego

MANY USERS ARE finding that contrary to vendor hype, packaged data warehousing tools still handle only pieces of their warehouse projects.

That forces companies to invest time and effort writing custom programs to build, manage and monitor their data warehouses. The tools picture is bleakest for complex projects that involve a mix of systems and tap information stored in multiple mainframe databases or flat files.

Especially acute is the lack of tools to manage warehouse data and track its usage, said users at The Data Warehousing Institute's annual conference here last week.

More plentiful tools that extract production data and massage it for warehousing don't always match real-world needs, users said.

"The tools will allow you to do sort of basic things, but if you want to do complex data matching, you have to go outside their code. Once you do that, it's better to just write your own programs [to handle everything]," said David Frankel, head of data warehouse architecture at NBD Bank in Troy, Mich.

Otherwise, he said, companies can get stuck integrating multiple streams of metadata, the explanatory information that end users rely on to navigate around a warehouse. NBD uses Prism Solutions, Inc.'s tools to extract data from its mainframes but turns to homegrown Cobol code to convert the files for its Unix-based warehouse.

WAYS TO GO

[illegible]

Custom Cobol or proprietary language programs	34%
Tools built in to databases*	19%
Prism Solutions	10%
Tools built in to SAS Institute data sets	9%
Other	48%

*Oracle or Microsoft SQL Server

Source: The Data Warehousing Institute, Bethesda, Md.

Union Pacific Co. in Omaha is switching the loading routines on its 600G-byte warehouse from custom code to Prism's tools. But the railroad plans to stick with its own programs to extract and transform data, said Don Groessner, senior manager of decision-support systems.

Standardizing on one extraction tool would be tough because the warehouse is fed by programs written in numerous languages, Groessner said. The custom coding is done by Union Pacific's 500 application programmers, "and we don't want to teach them all Prism," he said. "These tools aren't cheap."

Extraction tools that are less expensive and easier to use became available last year from Informatica Corp. and Sagent Technology, Inc. But they have limited mainframe ties and are "geared for smaller installations," said Wayne Eckerson, an analyst at Patricia Seybold Group in Boston.

On the management side, metadata problems that block end users from getting to data "can shoot down a warehouse project faster than anything," said Gary Midgley, database administrator at the Workers Compensation Fund of Utah in Salt Lake City. "But you pretty much have to go and write something yourself" to manage metadata, he said.

Warehouse management and monitoring tools announced last week by start-ups Intellidex Systems LLC in Winthrop, Mass., and Pine Cone Systems, Inc. in Castle Rock, Colo., hold some promise, said Michael Wade, senior manager of revenue reporting systems at MCI Telecommunications Corp.'s business markets group in Atlanta.

"We're obviously going to do whatever we have to in order to deliver [those capabilities] quickly, which means handwritten scripts and a mess for now," Wade said.

Automated tool promises easier network design

By Patrick Dryden

COMNET ATTENDEES can get a sneak peek next week at software that automates the arduous task of designing a complex LAN or WAN.

Start-up Network Tools, Inc. in San Jose, Calif., will preview Caliper, a systems-engineer-in-a-box that can slash the time and expertise required for planning new networks.

Skilled LAN/WAN engineers are in high demand but short supply. Few can wade through internetworking vendors' thick product guides and configure a workable network. Besides, the process might take days.

QUICK PROCESS

Windows-based Caliper combines design rules with product specifications, initially from three leading vendors — 3Com Corp., Bay Networks, Inc. and Cisco Systems, Inc.

The network designer answers basic questions about buildings, floors and users. Caliper then designs a network, complete with a bill of materials and a sketch of internetworking gear down to the port level.

"Network configurations have grown so complex, and options keep changing, so it's a real nightmare to come up with a design, document it and validate it," said David Brenner, director of the network technology center at Texas Instruments, Inc. in Dallas.

Brenner wants to use Caliper for quickly building LANs that test TI's networking chips and customers' products. Vendors such as 3Com and Bay Networks want to equip their sales engineers with Caliper to speed their designs.

Integrators and vendor sales forces will benefit most from the initial version, which is due in April for $4,995, said John Morency, a principal at The Registry, Inc., a network consultancy in Newton, Mass.

Information systems managers will benefit more when Network Tools broadens its library of product specifications and enables Caliper to analyze existing networks, Morency said. IS managers then could more easily tackle designs and enhancements, experimenting with product combinations from a more diverse set of vendors.

Design tools from vendors such as Imagenet, Inc. and Netsuite Development can design networks and document existing ones, but they lack the speedy automation of Caliper, Morency said. Make Systems, Inc. includes similar design tools in its full-scale suite, but that software is so complex, the vendor had to create a service organization to help users.

New switches take on routing features

By Bob Wallace

ALTHOUGH THE promised benefits don't come without risks, users are expressing interest in a new generation of switches that incorporate advanced routing features.

Layer 3 switching, which adds routing functionality not found in Layer 2 switching, is expected to take center stage at ComNet this week in Washington. Layer 3 switches have been shipping for a few months.

Users say it costs less to invest in the new switches than to upgrade routers. And they say the high-end switches offer better performance.

The most likely candidates for Layer 3 switching are users who face a router upgrade or who are already deploying switching, analysts said.

"We're not using Layer 3 switching yet, but it's alluring because it takes a big load off your routers, which means you don't need as big and expensive routers," said Jim Hutchinson, network manager at Children's Hospital in Boston, a Digital Equipment Corp. customer.

"The big iron router isn't going to be the important box it is today, but Layer 3 switching doesn't mean routers will vanish," he said. Routers and switches will coexist, he said.

Other likely candidates for Layer 3 switching include organizations with old routers that can't be upgraded.

Net manager Steve Lopez

The biggest concern about Layer 3 switching is the lack of a standard

"We have eight Cisco [Systems, Inc.] AGS+ routers that would cost $50,000 to $60,000 to replace with [Cisco's] top-of-the-line router, and that's with our 30% education discount from Cisco," said James Wiedel, director of networking at the University of Southern California in Los Angeles, a Cabletron Systems, Inc. account. "We can go with Layer 3 switching for less than a third that cost."

Wiedel said faculty members constantly attach their computers to different places on USC's 10,500-node network and that it is much easier to reconfigure Layer 3 switches than routers to handle the changes. Wiedel says Layer 3 switches and routers can coexist. But "routers are going to get pushed out to the edges of the network where they'll handle more wide-area network functions," he predicted.

Some users warn that buying into Layer 3 switching can mean becoming trapped in a proprietary, single-vendor switching scheme.

"This is a key concern, as there's no standard of any type in sight for [Layer 3] switching," said Steve Lopez, network manager at The National Board of Medical Examiners in Philadelphia, a 3Com Corp. customer. "We don't exactly know what the hard payback is for this technology, and it may require retraining some of your staff as well."

And the dearth of cross-platform network management packages and results of the single-vendor approach — has Hutchinson worried. "Vendors like Cabletron and 3Com have [great] packages, but cross-platform support is not out there from any vendor, and that will hold many users with mixed network environments back," Hutchinson said.

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Web tool enables collaboration

▸ *Java-based software allows teams of users to build, manage sites*

By Mitch Wagner

MORTICA KAHN SYSTEMS, INC. has introduced a software tool designed to allow teams of users to collaborate on building sites on the World Wide Web.

Web Integrity 2.1 was designed to offer a way for teams to manage Web projects, working entirely from within a Java-enabled browser. The product is available now.

"The process now for getting files onto a development server and then into product is all manual. We're trying to find a way to automate it," said Eve Shalley, corporate Web coordinator at Pfizer, Inc. in New York. "From the testing I've done, this seems to provide a lot of the functionality I'm looking for."

Web Integrity 2.1 adds a small, rectangular control panel to the corner of a page. A user finds an object to be modified and clicks on a button in the control panel. This invokes the software tool of the user's choice: a Hypertext Markup Language editor for text, a graphics editor or a software development tool for Java applets or other code.

WEB INTEGRITY 2.1

- **Server requirements:** Microsoft's Internet Information Server or Netscape's Web server
- **Operating systems supported:** Windows NT, Solaris, HP-UX, AIX, Irix
- **Client requirements:** Java support
- **Price:** $15,000 per server for unlimited users
- **Availability:** Now

Site administrators can also set up workflow procedures. For instance, on a magazine site, certain users might be designated as authors, and their work can be sent to other users who are designated as editors.

SERVERS SUPPORTED

The MKS software runs with Microsoft Corp.'s Internet Information Server and Netscape Communications Corp.'s line of Web servers, running on Windows NT, and common Unix servers. It costs $15,000 for a single-server license for unlimited users.

The software joins a small group of products designed to foster collaboration on Internet sites.

Wallop Software, Inc. in Foster City, Calif., offers Build-IT, a collaboration tool for Internet sites designed primarily for application developers, rather than MKS' target user base of information providers [CW, Oct. 21, 1996]. Vignette Corp. sells a collaboration tool designed for very large information-provider sites. It costs $9,500 for a 10-user license. The Vignette product has its own server, specialized for high-traffic sites, that costs $9,500 [CW, Nov. 25, 1996].

MKS software allows users to make side-by-side comparisons between versions of the same World Wide Web document

X.25 users remaining loyal despite frame-relay hype

By Kim Girard

FRAME RELAY may be all the rage, but many corporations — particularly on the international front — aren't budging from reliable, widely available X.25 networks.

"There are a lot of places in underdeveloped countries where X.25 is the best you're going to get," said Chuck Rush, global network architect at McDonald's Corp. in Oakbrook Terrace, Ill.

"Given my choice, X.25 would be on the bottom [of the list]," he said. "But sometimes the choice is, 'Do you want a substandard telephone connection or an international carrier's X.25 connection?'" McDonald's plans to use X.25 abroad when it builds its global network, Rush said. Planning for that network is under way, he said.

MAINFRAME MAINSTAY

In the U.S., X.25 packet-switching technology for wide-area networks is entrenched in financial and government networks that use mainframe applications, said John Coons, an analyst at Dataquest in San Jose, Calif.

In many cases, these firms don't intend to move to frame relay, Coons said, despite its cheaper price tag. "[X.25] is declining a lot slower than you would expect because of certain vertical [markets] using it," Coons said.

FTD, the international floral delivery service, uses X.25 to move order information in 148 countries. FTD uses Sprint Corp.'s network to process 1.2 million international orders a year. "We don't have large files of data," said Dennis Blondell, a director of operations at FTD. "We can dump that across [Sprint's] network in four seconds, if not quicker."

For companies that need slow transmission and have a lighter data load, it is more cost-effective to use X.25, said Liza Henderson, broadband analyst at TeleChoice, Inc. in Verona, N.J.

Carriers in the U.S. are using X.25 predominantly to offer dial-up access to frame relay, and as a backup or supplement for leased lines.

In the Asia-Pacific region and parts of South America, X.25 is often the only technology available if leased lines are hard to come by and the infrastructure can't handle circuits that provide speeds of more than 64K bit/sec. When the quality of analog telephone lines is inferior, X.25 compensates by checking packets for errors at every hop between the origin and destination of the transmission.

Guaranteed frame relay on tap

CONTINUED FROM PAGE 1

Intermedia Communications Florida, Inc., a frame-relay provider in Tampa, Fla., plans to offer Quality of Service guarantees in June, said Greg Tennant, director of marketing and product management at the company.

Quality of Service for frame relay isn't yet a standard. While the Frame Relay Forum works on a standard, some carriers plan to provide Permanent Virtual Circuit (PVC) priority, which enables traffic to be moved up in line on a network. MCI Communications Corp. plans to roll out PVC priority in March, officials said. Quality of Service allows users to spell out a service level that defines specific levels of cell loss and delay.

An Intermedia software upgrade to Cascade Communications Corp. switches will be used to help network managers merge multiple types of traffic on a common frame-relay backbone, Tennant said. More time-sensitive traffic, such as SNA and voice packets, will take priority over electronic mail and less time-critical applications.

NETWORK MANAGEMENT

USERS CONSIDER SERVICE

Scott Meyers, network operations manager at Cargill, Inc., an agricultural supplier in Minneapolis, said he would consider using a service that helps prioritize network traffic.

"We could take critical business units that need additional capacity and give them priority," he said. "Today, [priority] is equal [throughout the company]." Meyers uses Visual Up-Time, a product from Visual Networks, Inc. in Rockville, Md., that helps measure network performance. But the tool can't prioritize traffic or packet delivery.

Sprint is working with its switch makers, Alcatel Canada Wire and Nortel, Inc., toward offering premium service packages in the next several months, said Brad Hokamp, Sprint's director of advanced data services.

For example, high-priority SNA applications would get a higher service level at a higher price than LANs that carry routine traffic, a Sprint official said.

AT&T has no imminent plans to offer quality-of-service guarantees, said Tom Brophy, product manager for frame relay and Asynchronous Transfer Mode.

Brophy said until equipment on the customers' end meets the same Quality of Service standards as vendors' switches, it will be hard to offer end-to-end service guarantees.

But AT&T's approach gives little meaningful end-to-end information to corporate network managers, said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J.

"Performance can vary, but there's no way to hold the carrier accountable," Nolle said.

WHAT'S YOUR PRIORITY

Cascade's Priority Frame service lets carriers offer four levels of service

Type of traffic	Requires
Videoconferencing	Committed bandwidth, low frame loss, low delay
SNA, voice and video packets	Committed bandwidth, low frame loss, moderate delay
LAN-to-LAN, business-class Internet/Intranet	Committed bandwidth, low frame loss, higher delay
E-mail, file transfer	Available bandwidth

& Cascade Communications enables carriers to offer service pledge. Page 53

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23. Dir./Mgr. Sys. Development, Systems Architecture
31. Programming Management, Software Developers
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60. Sys. Integrators/VARs/Consulting Mgt.

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12. Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT

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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
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Demand surges for Notes experts

By Barb Cole

ATTRACTING AND RETAINING experts in the relatively young area of Notes groupware technology has never been easy.

But it is getting even harder to find talent now that World Wide Web technology has been added to the product line and more companies are embarking on large-scale Notes deployments.

"It's a struggle to recruit Notes talent," said Jeff Held, a partner in the center for technology enablement at Ernst & Young, which has about 40,000 seats of Lotus Development Corp.'s Notes.

NOTES KNOWLEDGE

The ideal person is someone who knows Web technologies and Notes, "and that's very hard to find," Held said.

Some companies rely on consultants to fill the void. Others train their own people in the required disciplines. Several companies said they are casting a wider net in their search for Notes talent.

Other information system shops have pooled Notes developers and administrators on a central team and rotate their jobs to keep them from getting bored.

Matt Cain, an analyst at Meta Group, Inc. in Stamford, Conn., said the demand for Notes experts will worsen because the number of Notes seats hit 9 million at the end of last year, up from 3.3 million in 1995.

Notes experts command about $60 an hour, so many corporate developers are expected to jump ship for consulting jobs. Gary Clare, president of the Worldwide Association of Lotus Notes Users & Technologists, said the most sought-after skills in the Notes arena are expertise in Domino, the Web-enabled version of Notes; TCP/IP networks; and Java.

McDonald's Corp. in Ann Arbor, Mich., brought in outside help to design intranet applications around Domino. But McDonald's found that it is hard to keep even consultants these days. "Most of the people we've lost lately have been consultants," said Aaron Wiltz, a technical analyst at the company.

Ernst & Young hired Web developers and trained them on Notes to fill its needs. At the same time, it has gone beyond its usual pool of applicants.

"We've started hiring people with backgrounds in film and the arts to develop Web content and training them on Notes development," Held said.

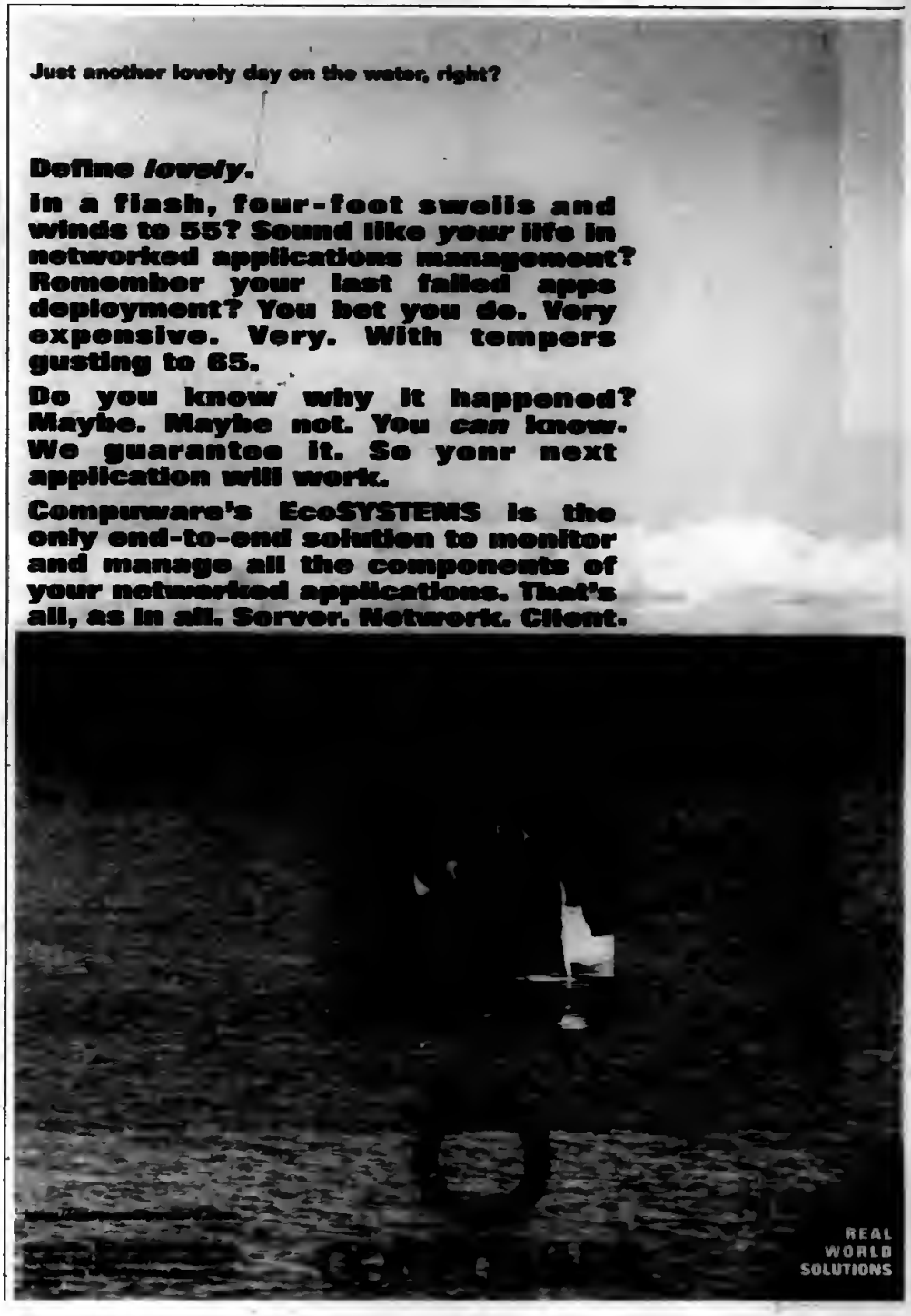
Domino.Connect

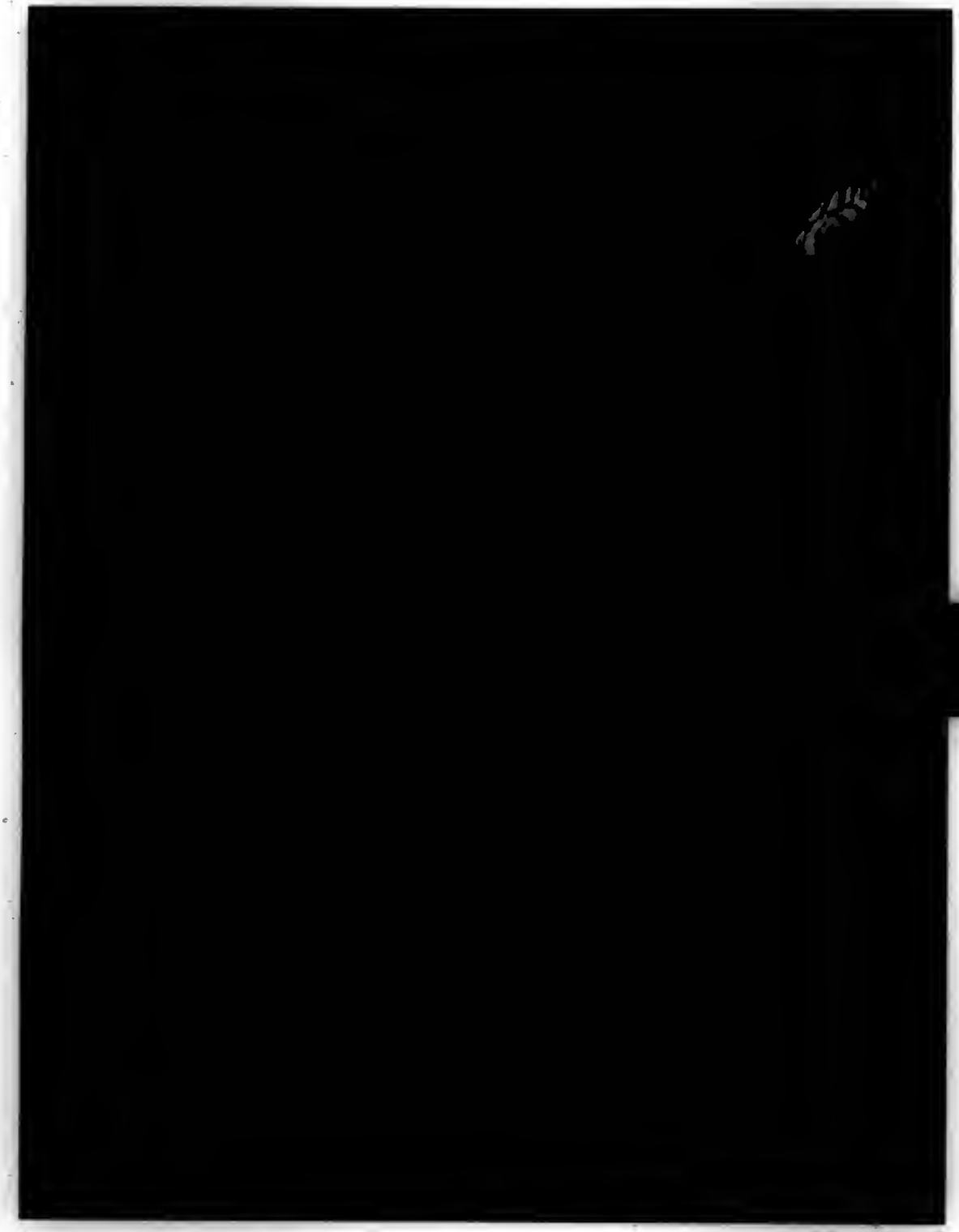
Lotus is prepping software that will make it easier for developers to connect the company's Domino server to legacy applications, company officials said last week.

Domino.Connect is a set of server-based tools for linking Domino to databases, transaction processing systems and applications such as SAP AG's R/3.

The software is aimed at companies that want to use the Domino environment as a way to access and manipulate data locked in corporate applications. It also lets companies link these applications to the World Wide Web through Domino.

Domino.Connect is slated to ship this spring. It supports IBM's DB2 and Oracle Corp. databases, as well as the Open Database Connectivity protocol. Domino.Connect costs $7,995 per server. — Barb Cole





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COMPAQ

Has It Changed Your Life Yet?

Supply chain tools link to bottom line

By Randy Weston

INFORMATION SYSTEMS managers interested in proving the value of client/server technology might want to start with supply chain management software before rolling out an enterprisewide application package.

Users said the technology lends itself to showing bottom-line savings through better management of inventory, cuts in delivery time to customers and better project planning.

And at $400,000 to $600,000 for an initial installation, the up-front cost is much easier to sell than a multimillion-dollar, enterprisewide installation. It also can be implemented in less than nine months, compared with up to two years for an enterprisewide rollout.

"I defy anyone to show substantial results from implementations" of enterprisewide client/server systems, said Bruce Richardson, vice president of Advanced Manufacturing Research, Inc., a consultancy in Boston. "They can't; they're still installing them. But supply chain management software has real tangible results."

Howard Jagoda can vouch for that. Jagoda was director of supply chain management at Owens & Minor, Inc., before recently taking a job with another company. Owens & Minor is a $3 billion medical and surgical supply distribution company in Richmond, Va.

1995	$182M
1996	$318M*
1997	$585M*
1998	$920M*
1999	$1.28B*

Source: Advanced Manufacturing Research, Inc., Boston

The company has been using Manugistics, Inc.'s supply chain management software since 1995 and has it installed at 53 sites nationwide.

In the first year, inventory turnover increased 1½ times, for a savings of $40 million. The company also slashed the frequency of ordering supplies from five times per week to one.

The savings also came at a critical time for the 114-year-old company, which posted its first-ever loss in 1995. Jagoda said cost-cutting efforts such as better inventory management helped the company bounce back.

TIMING IS EVERYTHING

The trend toward supply chain software is expected to continue as customers demand that their suppliers offer immediate delivery of any product, anywhere.

Mobil Oil Corp.'s lubricant unit in Fairfax, Va., ordered supply chain management software after it received disturbing results from a customer survey.

The division, which makes motor oil, lubricants and other materials, turned to Manugistics to correct the problem, said James Sheahan, supply chain manager at the division.

"Customers told us we were not very easy to do business with," Sheahan said. "We were not always able to have what the customer needed at the right place [and] at the right time."

Mobil now can deliver on demand more often. Inventory is better managed, and sales data is tied to supply and inventory management for better forecasting.

"We now get tactical information from sales and purchasing forces that goes right into the demand scheduler," Sheahan said. "We are forecasting inventory a year ahead based on two years of sales history."

Besides market leader Manugistics, other key players include I2 Technologies, Inc. and Numetrix.

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Job hunters look beyond salary quest

▸ *New skills, technology tools top list for IS job-hoppers*

By Julia King
PHILADELPHIA

IT'S CALLED a job fair. But what almost everyone here — other than recruiters — seems to be looking for is a bigger project or a chance to learn new skills and test-drive cutting-edge technologies.

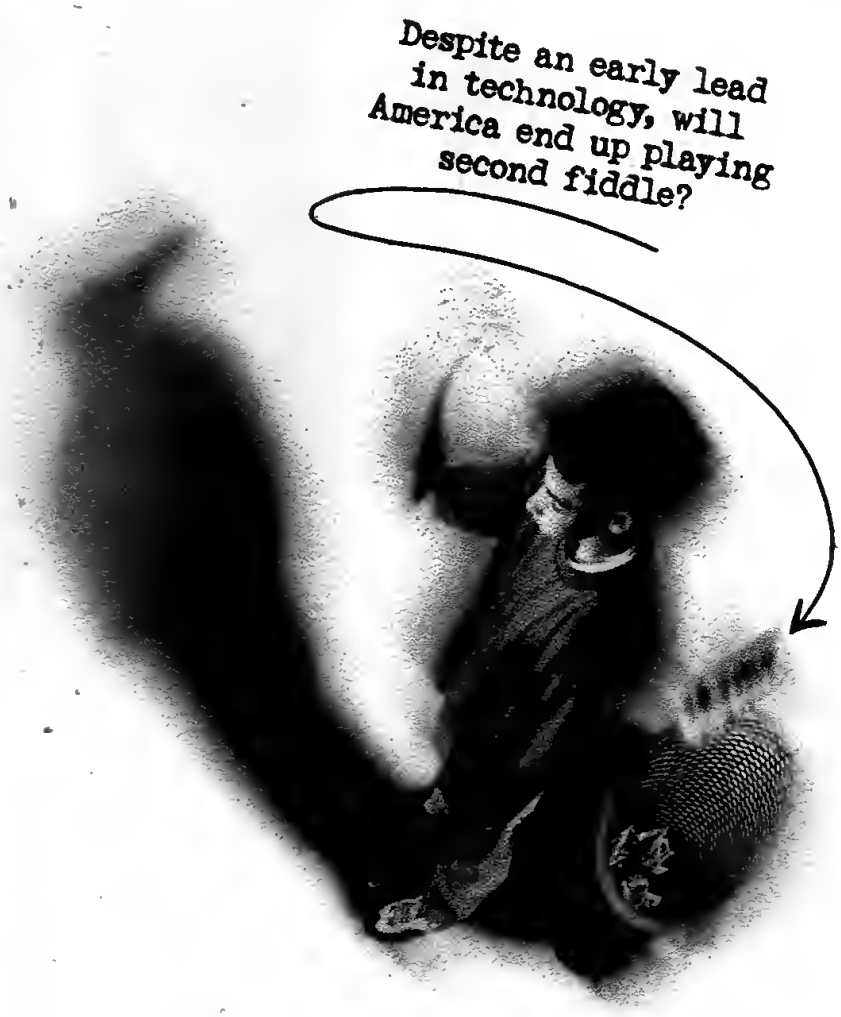
More money isn't the main issue.

"I'm looking to move to another company to get exposure to other systems," said one 49-year-old systems manager who attended a recent two-day technical career fair sponsored by *The Philadelphia Inquirer* and the *Philadelphia Daily News*.

"What's going on here is a lot of reshuffling. People are not so much looking for jobs but trading," he said.

In many cases, job seekers are trying to leave one career and break in to the red-hot information systems field.

"We're seeing a lot mechanical engineers and a lot of people from sales," said Frank Bennett, a senior staff recruiter at Unisource Systems, Inc., a Chicago-based systems integration consulting firm.



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MONEY ISN'T EVERYTHING

"We're also seeing a lot of 40-year-olds and higher with one to two years' experience in IS," he said. "From our perspective, these are not good quality people because we're a consulting company and need people who can hit the ground running."

Yet it is at the suites of small and large consulting companies where the lines of prospective employees clutching resumes are longest.

Among them is Margie, a 40-something independent consultant who works as a technical project manager.

"I feel like I'm missing something by being out on my own, which is why I want to go to work full-time with a consulting company," she said.

YOUNG BLOOD

At the other end of the spectrum are job seekers such as Bobby K. Stephens, a graphics designer who wears a small gold hoop in his left ear. Among other things, Stephens is a former webmaster who has developed World Wide Web sites and knows Hypertext Markup Language and JavaScript.

Stephens said he is seeking a company where he can "lead a Web development team to profitability."

He also knows what he doesn't want — a firm with a hierarchical management structure. "Level organizations are the quickest to respond to the market," he explained.

How can Stephens tell one type of company from another at a job fair? The most obvious tip-off is how recruiters deal with resumes, he said.

"If it's a hierarchical company, they greet you, then go back and hand off your resume to someone else," he said.

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Chargeback, advertising: Options to fund intranets

CONTINUED FROM PAGE 1

a business plan that includes selling advertisements to help finance a companywide intranet.

There are concerns but eventually the idea will take off," predicted Mark Gallagher, a first vice president in technology administration at the Chicago bank.

The more familiar concept of chargeback to user departments is also on the intranet horizon.

For instance, Vancouver, British Columbia-based B.C. Hydro this month plans to start charging end-user departments from $14.50 to $25 per user each month for intranet and Internet services.

Making money isn't the goal — recouping money spent is, said Steve Whan, a computer specialist at the Canadian energy company. "Our company bosses are telling us that every [department] has to prove why [they] exist and that they're efficient," Whan said.

International Data Corp., a consultancy in Framingham, Mass., estimated that more than $25,000 is spent to set up the average intranet, so webmasters would be wise to find ways to come across with the green.

"Our company bosses are telling us that every [department] has to prove why [they] exist and that they're efficient."

– Steve Whan, B. C. Hydro

OLD CONCEPT

Advertising is unlikely to become the primary method for funding intranets. Only four out of 100 IS professionals polled by *Computerworld* said they already sell ads to help pay for the projects. But another 40 said they would consider it (see charts above).

"This idea has come up with every client I've worked with, though none have done it yet," said Todd McGuire, an intranet consultant at Raymond James Consulting in Denver.

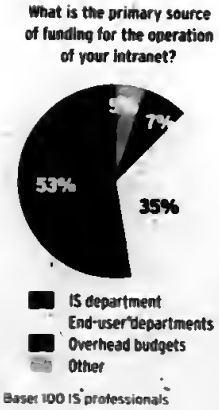
As radical as it sounds, at work, advertising isn't new. Companies often arrange and publicize employee discounts at health clubs, shops and other local businesses. For example, the 90,000 workers at Electronic Data Systems Corp. get a 5% discount off products at CompUSA and other computer retailers.

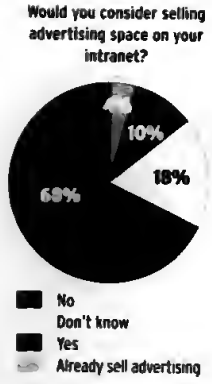
But intranet advertisements worry some people. The ads could distract users from jobs or slow network processing.

"Intranets are mission-critical software that need to be productive. That's what bothers me," said Bob Breedlove, a senior systems engineer at EDS in Rancho Cordova, Calif.

Liability questions also surface. If a company runs spots for a Texas car or United Airlines flight, the question arises whether the company is implicitly endorsing those products, said Andrew Barter, an IS manager at The Incredible Clothing Co. in Toronto.

"If something doesn't work or [users] get bad service, they would come to the IS department and start screaming at me," Barter said.





WHAT'S FAIR?

The problem with end-user chargebacks is that no one is sure how to do it fairly.

With mainframe applications, IS could figure pretty easily which users were on the system for how long. But with intranets, servers and users can be anywhere — in different departments or even in different countries. Usage is tough to track even with detailed log files.

The thought of reconciling dispersed logs with accounting records is "too ugly," Whan said. Yet lean, mean budgets have forced IS to look at unconventional ways to make its work pay off, said Eric Hughes, vice president of intranet development at Wells Fargo & Co.

San Francisco-based Wells Fargo treats its 15,000-user intranet as a product that competes with those from commercial Web-hosting services or Internet service providers.

Departments that want a spot on the intranet pay a monthly fee. They also pay according to how much content they post.

An IS "salesperson" at the bank ensures that departments get what they want and like what they pay for.

Users could, in theory, go outside for the same services, Hughes said. "We're very cognizant of that," he said.

IS PROJECTS

Free ride for intranets may be close to the end

By Kim S. Nash

COUNT YOUR blessings, webmasters. Intranets remain one of the few IS projects you don't have to pass under the eagle eyes of company accountants.

Of 100 IS professionals polled this month by *Computerworld*, 64% said management didn't ask for formal cost-justification before proceeding with intranet projects.

The results mirror *Computerworld*'s May 1996 survey, when 63 of 100 workers said the same thing.

Are you wondering why? Because the average intranet doesn't call for the substantial investments of some client/server systems, said Steve Andriole, an analyst at Zona Research, Inc. in Redwood City, Calif.

EASIER TRAINING

Training programmers in Hypertext Markup Language and other web skills isn't as expensive as teaching client/server development, either, he said.

And the hardware to run intranets is already in place at most companies. The software is relatively inexpensive, as well.

But the free ride won't last forever. Intranets have become more expensive in the past year or so, as IS builds applications that are more complicated than employee directories or benefits manuals.

Intranets have become more expensive in the past year.

With complexity come the tentacles of "management," explained William Monroe, a training instructor and webmaster at Harris Corp., an electronics company in Melbourne, Fla.

Intranets at Harris grew largely without formal approval from management in the early 1990s, Monroe said. But today, a veritable bureaucracy — a web council made up of managers from several departments — governs whether and when departments can build and post content to Harris' intranets.

Chargeback, advertising: Options to fund intranets

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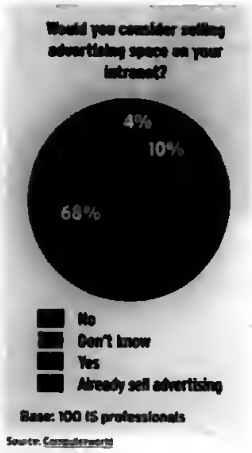

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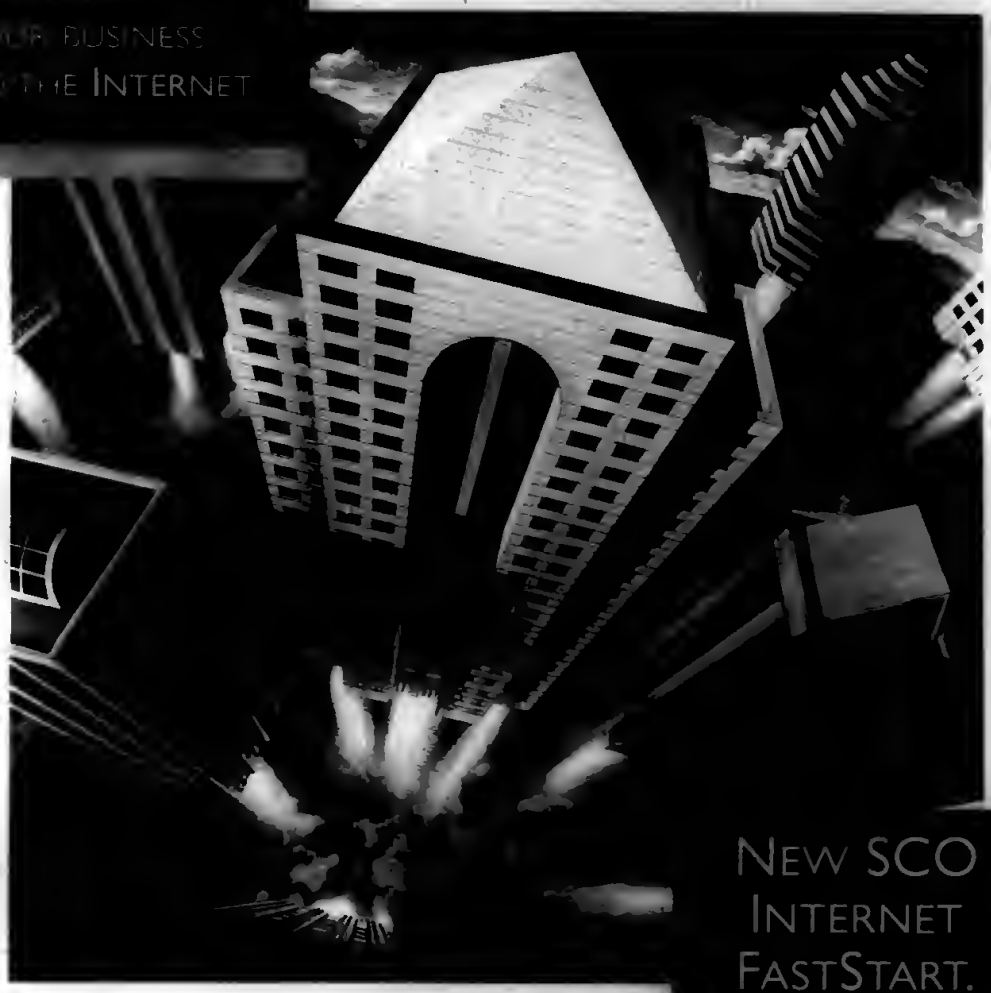

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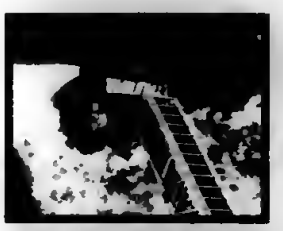

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Acer acquires TI's notebook business

By Mindy Blodgett

THE ACER GROUP, the world's seventh-largest PC manufacturer, last week bought the mobile-computing assets of Texas Instruments, Inc. in Dallas.

The value of the deal wasn't disclosed.

Acer now owns the TravelMate and Extensa notebook lines. According to International Data Corp. in Framingham, Mass., TI ranked sixth in laptop sales for the third quarter of last year.

The two companies made several strategic alliances in recent years. In 1989, they formed TI-Acer, Inc., a Taiwan-based manufacturer of dynamic RAM chips.

Industry observers said the acquisition is a sign of things to come in the notebook industry, which is currently marked by intense competition and razor-thin profit margins.

Steve Lair, formerly vice president of worldwide marketing and sales at TI's Personal Productivity Products unit, will become senior vice president of sales and marketing of commercial systems at Acer America Corp. in San Jose, Calif. He will report to Ronald Chwang, Acer America's president and CEO.

Weak spots color Big Blue

By Tim Ouellette and Wylie Wong

BIG BLUE just keeps on trucking.

IBM recorded $23 billion in fourth-quarter revenue and a $2 billion profit, up from revenue of $21.9 billion and profit of $1.7 billion a year earlier.

But even with record revenue, Wall Street watchers say the lukewarm numbers may put an end to the company's stock run-up. For example, hardware sales for the year were up only 2%, although demand remains consistent for mainframes and midrange systems.

IBM's stock dropped 10 points after its results came out.

Hardware sales totaled $11.7 billion for the quarter, a 2% increase from the prior year. For the year, the company posted $36.3 billion in hardware sales.

For all of fiscal 1996, the company racked up $75.9 billion in revenue, a 6% increase from the previous year's $71.9 billion. Net earnings were $5.9 billion, or $11.06 per share, compared with $6 billion, or $10.46 per share, a year earlier.

Richard Thoman, IBM's chief financial officer, blamed low dynamic RAM prices, a poor European economy and unfavorable currency exchange in overseas business for 1996 profits falling behind 1995 numbers.

Although the PC and hard disk drive businesses were the best performers in the hardware group, those areas provide the lowest profit margins.

Services led all business areas, recording 22% gains and hiring 15,000 employees to keep up with business. Thoman said another 15,000 people will be hired this year to keep pace with new contracts.

Other companies reporting earnings included the following:

- **Unisys Corp.** had profits of $43.6 million for the quarter ended Dec. 31. The previous year, Unisys lost $676.8 million. Quarterly revenue was $1.81 billion vs. the prior year's $1.87 billion.
- **Compaq Computer Corp.** is on a roll. It had quarterly profits of $462 million, up 43%. Revenue was $5.4 billion, up from $4.7 billion.
- **Borland International, Inc.** continued its slide. The company had quarterly revenue of $36.8 million, compared with $55.3 million for the same period the prior year. A net loss of $29.4 million was reported, compared with a $1.1 million profit a year ago.
- **Computer Associates International, Inc.** fell short of analysts' expectations for quarterly revenue by $100 million to $200 million, as CA warned last month. It reported slightly more than $1 billion in sales for its third fiscal quarter, which ended Dec. 31.

OPERATING SYSTEMS

Gassee's Be isn't passe

▸ Despite Apple's decision to buy Next, users and software developers see potential in the BeOS

By Lisa Picarille

APPLE COMPUTER, INC. may have dropped plans to buy Be, Inc. in a bid to jump-start its own lagging operating system efforts, but some Macintosh users and developers predicted Be will bounce back.

Apple's interest in Be lay in the BeOS — a multitasking, multithreaded, symmetrical multiprocessing operating system with an object-oriented application programming interface (API). Apple last year scrapped Copland, its much-delayed next-generation Mac OS, and was looking for help.

Reportedly priced company at $500 million

But Be Chairman and CEO Jean-Louis Gassee, a former Apple executive, reportedly overplayed his hand with Apple by demanding close to $500 million, a high-level post and a seat on Apple's board. Apple passed on Be and opted to purchase Next Software, Inc. for $400 million. Founded by Apple co-founder Steve Jobs, Next offered microkernel technology coupled with an object-oriented API.

POWER STRUGGLE

Gassee denied the deal fell apart over money but hinted at power issues. He noted that Jobs will be a consultant, not a full-time employee.

Apple's interest may have cooled, but users mobbed Be's booth at Macworld Expo earlier this month. Attendees wanted a glimpse of the much-ballyhooed BeOS. And a Be developer conference this month attracted 420 developers. Be claims to have interest from a significant number of developers, including Adobe Systems, Inc. and Macromedia, Inc.

In a survey of developers conducted this month via DaveNet, an online mailing list overseen by longtime Macintosh software developer Dave Winer, almost half of the 1,898 developers who responded said they are either developing for the BeOS, it figures strongly in their development plans or they have plans to develop for the BeOs.

Be plans to move on by delivering its BeOS as an alternative PowerPC operating system.

When the BeOS debuted in the fall of 1995, it ran on BeBox proprietary hardware. But Be quickly ported the system to the PowerPC platform in search of a larger base of potential users.

Be's chance might come from the virtual Mac OS for Be, a recently announced emulator that runs current Macintosh applications unmodified and ports versions of the BeOS to other platforms.

Sources close to Be claimed the company is developing a version of its BeOS that runs on Intel Corp. Pentium chips. They said it is due in late spring.

Gassee declined to comment. "It's a little premature to discuss that," he said.

The buzz on Be started to pick up in August at Macworld Expo in Boston, where the Menlo Park, Calif., start-up demonstrated the BeOS running on PowerPC-based, Mac OS-compatible systems from Power Computing Corp.

By late November, Power Computing, the Round Rock, Texas-based Macintosh clone maker, had cut a deal allowing it to bundle the BeOS with all its systems.

"Apple blew their chance when they opted for Next," said Joe Ferlazzo, an analyst at Technology Business Research in Hampton, N.H. "The passion once instilled by Apple is still alive in the [developer] community, but it's now for Be."

BEOS FEATURES

- Multitasking
- Multithreading
- Symmetrical multiprocessing
- Object-oriented

APPLICATIONS NEEDED

Users also are excited about the potential of Be, but only if there are a lot of applications for it.

Mark Stelzner, editorial publishing director at Gruner Plus Jahr USA Publishing, a New York-based publisher with 350 Macintoshes, is a believer in Be. "At the workstation level, [it] has the potential to really boost productivity to the platform," he said. "Be may not be the universal operating system, since the [Apple] deal fell through, but they are in a strong position to be a major player. And if there are applications in my field, I would want to look at it very hard."

> **"Apple blew their chance when they opted for Next. The passion once instilled by Apple is still alive in the [developer] community, but it's now for Be."**
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> **– Joe Ferlazzo, Technology Business Research**

"Right now, our company wouldn't be interested in Be because we are more mainstream," said Mike Bailey, a systems analyst at Lockheed Martin Missiles & Space, an aerospace firm with more than 9,500 Macintoshes that is moving to Windows NT. "But I would love to see Be take off. If they can get the mind share to get enough applications up and running, then I think they have a big chance."

MANAGEMENT REPORT

SAS INSTITUTE

VOLUME 7, NUMBER 1

DATA MINING

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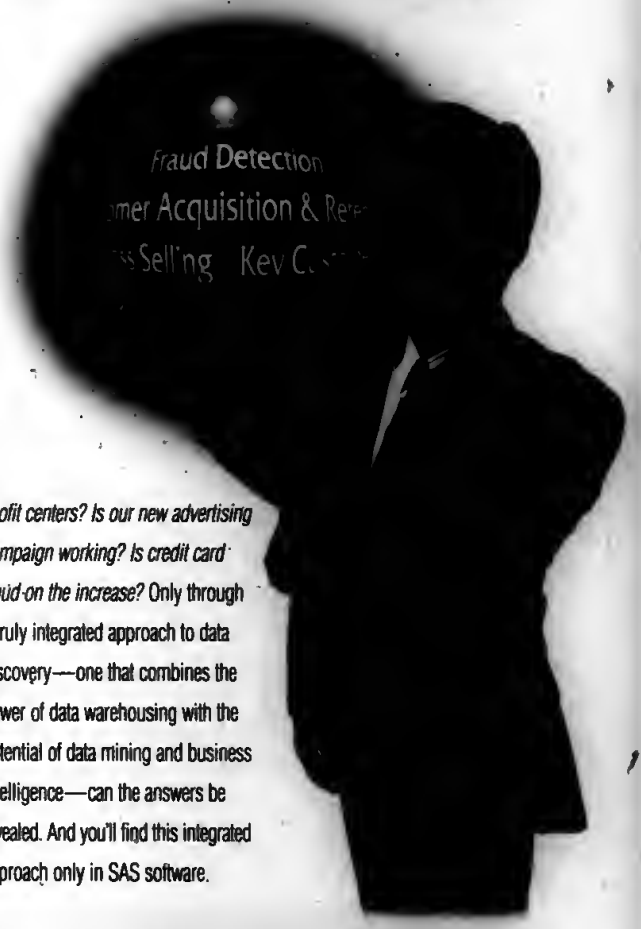

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Mark Brown

SAS Institute's Program Manager for Data Mining

Data Mining the SEMMA Way: Taking a Creative Approach to Data Discovery

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In helping companies both large and expanding implement our data mining solution, I've come to realize that all these capabilities can by somewhat overwhelming... especially in the beginning. Even though data mining is designed to exploit massive amounts of data, I think you'll be most successful if you first define the quantity of data to use. If you use more data than you have to, your analysis will take longer and can get unwieldy.

That's why—for optimal cost savings and performance—I advocate a sampling strategy. You can apply a statistically representative sample of the full data table and still get reliable answers for improved decision making. In fact, sampling is the first step in the SEMMA process, or what I like to call a practical approach to data mining.

Sample

Extract a portion [illegible] signif cant nformat[illegible] manipulate qu ck[illegible]

Explore

Search for unant cipate[illegible] understand ng and ge[illegible]

Modify

Create select an trai[illegible] mode se ect [illegible]

Model

Search aut at a[illegible] reliab y pre ts [illegible]

Assess

Eva uate the set[illegible]

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AGENDA

Session A 1:15 - 2:00	Session B 2:15 - 3:00	Session C 3:15 - 4:00
TRACK 1: Internet Hot Spots		
TRACK 2: PCs for the Next Millennium		
TRACK 3: Winning Software Strategies		
TRACK 4: NT in the Enterprise		
TRACK 5: LAN/WAN Dynamics		
TRACK 6: Market Spotlight		

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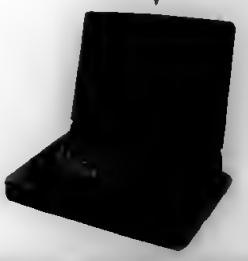

OPINION

Get serious There's nothing like a rousing discussion of Internet security to churn the stomachs of IS managers contemplating electronic commerce.

Consider the latest revelation from Dan Farmer, author of the SATAN software that finds holes in Web site security systems. In a recent survey of about 2,200 Web sites, he discovered 70% to 80% had "serious security flaws."

But more compelling than the scary statistics are the reasons behind them. Many Web sites are juggling so many services — from E-mail and 'net news to user accounts and online catalogues — that the sheer management of it all overwhelms the meager resources allocated for the sites in IS budgets.

"System administrators almost never get the proper budget or training to do security properly," Farmer told *Investor's Business Daily* last week.

Welcome to the heart of the issue. Despite the ever-growing assortment of security products, standards and tools, they are being used haphazardly at best, and ineffectively at worst. It's not that we lack the technology to cope with today's networked world — we lack the managerial desire to do the job right.

This issue is likely to slip to the front burner at many companies this week, after your CEO reads the *Fortune* magazine cover story on 'net security ("Who's reading your E-mail?"). So, what do you tell him?

First, that security isn't rocket science, but it does require honest-to-God-serious corporate policies and procedures. To cover the basics, you have to be able to assure confidentiality, control access, guarantee data integrity, authenticate those data sources and make sure someone can't deny the transaction afterward (what the security geeks call "nonrepudiation").

Doing all of the above calls for a raft of products, including firewall systems, digital signature and encryption software, secure E-mail offerings, etc. So pass the antacid tablets, and get cracking. Not hacking. Leave that to the amateurs.

Maryfran Johnson, *Executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

Web lacks customer service

I HAVE GROWN really tired of visiting a company's Web site to order a product, only to find that although they have made a considerable investment in the Web site, you cannot contact them, submit an order or get a reply! Recently, I attempted to do business with one firm that sells cellular-phone mounting kits. Its site had good pictures of products, prices and even an order form.

But every E-mail message I sent (to three different addresses) bounced. Also, there was no telephone number to call, only a fax number.

> Where is the marketing staff?

Why can't businesses figure out that when it comes to 'net commerce, this sloppiness is the equivalent of spending thousands of dollars for direct-mail advertising and then disconnecting your phone lines and firing the sales staff? Where is the marketing staff at these companies?

Gordon Hesketh
LaPorte, Texas
gordon@heskco.com

Avon planned ahead and is prepared for year 2000 costs

WE WANTED TO clarify an important point about Avon Products' programming upgrades pertaining to the year 2000 challenge ["Year 2000 problem comes bundled with legacy of potential litigation," CW, Oct. 14].

Computerworld's report might suggest that Avon will be incurring a series of new year 2000-related expenses over the next five years. This is not so. In fact, Avon has been addressing the year 2000 challenge for two and a half years.

We have already anticipated the issues and, very importantly, have budgeted for the expenses necessary for becoming century-date compliant.

Ronald D. Mastrogiovanni
Chief information technology officer
Avon, Inc.
New York

FRANKLY SPEAKING

Should you take the skills gamble?

FRANK HAYES

A READER WRITES: "It appears that [thanks to your 2000 projects] your Cobol skills I worked so hard to abandon may come in handy way soon. The hard thing now, however, will be trying to decide if I want to take a career vacation and trying to keep my client/server and distributed systems skills current. In your [illegible] find yourself with a pocketful of cash and a two-year crater in your client/server expertise. Then again, Internet and other new technologies might send much of that expertise to the scrap heap anyway.

In fact, no matter what technology you decide you want, you stand a good chance of getting burned.

That's true of IS managers and just about every other top talent in hot tech areas such as the Internet, warehousing, enterprise server applications course, year 2000 Cobol.

But those hot new skills often out the door when the offer comes along. This turnover rate makes the bill for filling a job even big.

Sounds like nirvana for technical professionals, the ones who collect these even salaries in the skills of right?

Wrong. As technology [illegible]

Automated tools to replace Cobol? I've heard it before

HIGHLY AUTOMATED tools will kill the demand for Cobol programmers ["Should you take the skills gamble?" CW, Jan. 13]?

They told me that in '81, '87, '89 and every year since. All that this year 2000 work proves is that there is plenty of Cobol work after 2000. The Web is just another front-end platform for PowerBuilder and Delphi? Insert a period after the word "platform."

Hey, I love the new technology. I want to work on ever-more-helpful user interfaces. I always was ashamed of the "green-screen." But don't repeat the mistake of thinking the mainframe disappeared.

The rest of the magazine may be full of Web and Java, but *Computerworld* columnist Frank Hayes should continue to "speak frankly."

Ian Smith
East Brunswick, N.J.

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

'Push' technology: Dead on arrival

Oliver Pflug

When assessing the market for a new technology, I ask two questions: What's the killer application for this? What's the net benefit to the customer? Applying these tests to "push" technology for corporate intranets, I find it lacks a killer app and that the fully loaded costs outweigh the benefits.

In short, Web push technology is a solution looking for a problem.

With push products from companies such as PointCast and BackWeb, the user defines some information categories and receives updates without having to ask or search for them. Imagine: You get what you want, when you want it and the way you want it. Push technology promises one-to-one information, increased productivity and reduced costs. And it's free, if you're prepared to endure streams of unsolicited advertising.

Web "push" is too costly, too intrusive and too much of a bandwidth hog

But companies that fall for this pitch fail to note the fully loaded costs of push technology. The bandwidth problems inherent in delivering multimedia content to desktops are obvious. Push products also use a big chunk of the desktop PC's memory and processing power, which can cause sluggish performance that won't help user productivity.

More insidious are the costs of producing and managing dozens of information channels in a large corporation. Consider the management time that will be devoted to tracking the new information channels and the inevitable political battles over who gets what information and what kind of advertising to allow.

Push technology also makes assumptions about how people consume information. Do you watch your monitor for long periods of time, the way you watch television? Do you want to be interrupted by news updates and advertising all day? *Boston Globe* columnist Hiawatha Bray tried PointCast and reported that it "torments users with ads for cars, allergy pills and mutual funds, played over and over until you want to scream." He banished it to the digital waste bin.

Maybe the biggest fallacy of push technology is the assumption that corporate employees want more information dropped on their laps. Because people's ability to absorb information remains relatively constant over time, shoving more data through their CPUs isn't a positive-sum game.

Users will ignore it, or they will replace active searches for specific nuggets with the passive, "couch potato" consumption of a general information feed. If users complain about E-mail overload, the problem is one of information management, corporate culture or training — not the technology.

What corporate users need are tools to find Web information quickly and the skills to organize and absorb that information. If the problem you're trying to solve is the need for more internal communication, then boring old E-mail is still the killer application, especially with multimedia enhancements currently hitting the market. You can target E-mail better than any Web push technology will, and you'll know the message got delivered and noticed.

Notwithstanding anecdotes of users who find something useful on their Web channels, corporate resources are better spent on Web applications that support real business processes, get you closer to the customer and generate business.

So, here's my prediction: Unless Web push technology quickly produces compelling applications that demonstrably contribute to the company bottom line, it will go the way of artificial intelligence and interactive television.

Pflug is president of San Francisco-based SiteCast, Inc., a market research and consulting firm that focuses on intranets and the Internet. His Internet address is oliver@sitecast.com.

Should virus carriers wear a scarlet V?

Michael Schrage

From the front page of *The New York Times* to the Op-Ed page of *The Wall Street Journal*, the role of shame in promoting appropriate behavior has become a hot public-policy potato. Should felons be legally required to post warning signs outside their homes as part of their parole? How about making drunken drivers put special plates and stickers on their cars?

Those aren't rhetorical questions: They're part of an ongoing argument about whether shaming people has a proper place in jurisprudence. Increasingly, judges are pronouncing sentences designed to shame criminals as much as punish them. Does shame really work? Is it cost-effective? Is it fair? Or does it merely breed bitter resentment?

Those aren't rhetorical questions for today's IS managers, either. Although IS departments aren't courts of law, they can't help but shape community standards — not just technical ones — in the enterprise networks they manage. Depending on the company you keep, shame could be as powerful a productivity tool as any network administration software around.

Then again, not all costs can be measured in time and money.

A very smart friend at a big bank conservatively calculated that viruses were responsible for at least 15 hours of downtime per week for her group's 100-plus PCs. A lot of her people used laptop computers and PCs at home and were responsible for bringing in all manner of disk-based infections. Members of her very white-collar clientele simply weren't practicing safe computing by scanning their disks before logging in to their machines and networks. Despite circulating the appropriate memos, warnings and reports, the problem was getting worse.

So my friend made a modest proposal: Why not publish the names of the people who were responsible for introducing viruses to the bank's machines?

The goal wasn't to humiliate people, but to make people publicly responsible for their actions — or inactions. Obviously, viruses can and do slip into machines. That's life. But there's a difference between having an occasional cold and being Typhoid Mary.

Is it wrong to post the names of viral violators? We aren't talking about making employees wear a scarlet V on their screen savers or their lapels. We're talking about making the community more aware of which members respect the virtues of safe computing and which ones don't.

Shaming could be a powerful IS tool to promote virus-free computing

Needless to say, my friend's suggestion met a reception so chilly, it qualified as cryogenic. Perhaps the more promiscuous executives didn't want to be publicly embarrassed. The knowing smirks and pursed lips of their colleagues and subordinates wasn't for them. The culture of this institution made shame an outrageous idea that offended managerial sensibilities.

You can sympathize, of course. But you also have to wonder about the level of self-deception that exists in any enterprise that deliberately chooses ignorance over awareness.

Should shame be a first resort for IS organizations to get people to respect their computational communities? Of course not. But organizations that are unwilling to use shame to remind people of what they should aspire to be should be ashamed of themselves.

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

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COMMENTARY

Business's multimedia gap

DAVID MOSCHELLA

INTEL'S DECISION to target the consumer market for its new MMX microprocessor raises an obvious question: What is the outlook for multimedia in the corporate market?

Someday, the typical office PC will have a microphone, speakers and a video camera. But right now multimedia just isn't a top priority for corporate IS departments. *Computerworld* research conducted during the fourth quarter last year shows that the two most prominent multimedia technologies — CD-ROMs and sound cards — are still far from pervasive in corporate America.

In businesses with more than 100 employees, about 30% of the PCs used have a CD-ROM drive. Sound cards, let alone speakers, are even less common; they are found in just 22% of corporate PCs. Combining the data reveals that fewer than one in five business PCs is equipped for multimedia. How does your organization compare?

Given how labor-intensive it is to add CD-ROM and sound capabilities to existing PCs, major upgrades to the installed base are unlikely. Significant increases in corporate multimedia usage can come only through the purchase of new machines. But in sharp contrast to the consumer market, multimedia alone hasn't given business customers sufficient incentive to replace installed PCs.

HOW TO JUSTIFY?

IS' reluctance to invest in multimedia is understandable. Outside the technology and media industries, serious applications are still rare. The Web has largely marginalized the business value of the CD-ROM, while Internet telephony and videoconferencing are still nowhere near achieving meaningful critical mass. But in the next year, a wide range of useful audio services should emerge that will justify sound capabilities for many knowledge workers.

Besides the still-debatable return on investment, multimedia PCs are highly visible and obvious targets for financial scrutiny. Moreover, deciding who should get such stature-laden devices remains a problematic mix of perks and utility. Unfortunately, it's hard to avoid the tendency to see enhanced PCs as just another version of the executive telephone.

In the next few years, three-dimensional graphics capability could substantially widen the gap between business and consumer requirements. When coupled with CD-ROM, stereo sound and, increasingly, TV-sized screens, 3-D games and other experiences will likely prove highly compelling to many consumers. The processing power required for these systems will easily exceed that for mainstream business computing, reversing the historical pattern. Employees may soon have to adjust to the idea of their home system having substantially more attractive capabilities than their office PC.

One of the many ironies of this emerging business/consumer schism is that corporations have the bandwidth to support advanced multimedia but lack the driving applications. Consumers can envision all sorts of multimedia entertainment and education, but they lack the required bandwidth. It's anyone's guess which side will catch up to the other first. But isn't it nice to know that making computers more fun has emerged as one of the PC industry's biggest technical challenges?

Moschella is senior vice president of research at Computerworld, Inc. His Internet address is david_moschella@cw.com.

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Briefs

DEC widens NT storage

Digital Equipment Corp. last week expanded its range of storage management products for Windows NT. Introductions included an enhanced version of Networker Save and Restore for Windows NT that manages up to five digital linear tape (DLT) libraries with 31.5T bytes of backup storage, a DLT library capable of storing up to 70G bytes of information per cartridge and a 4mm digital audio tape drive with transfer rates as fast as 775K bit/sec.

Boca upgrades

Modem maker Boca Research, Inc. in Boca Raton, Fla., has announced an upgrade policy to 56.6K bit/sec. from its current lines of 28.8K and 33.6K bit/sec. modems. The policy allows a user of any modem to upgrade to the company's new 56.6K bit/sec. modems based on new chip technology from Rockwell Semiconductor Systems to be released next month. Because standards have yet to be set for products that use the high-speed modem technology, Boca officials said "interim" products can be upgraded to standards-based products when ready.

1996 worldwide rigid disk drive shipments

- Seagate Technology
- Quantum
- Western Digital
- IBM
- Maxtor
- Other

Total shipments: 106 million

Source: Dataquest, San Jose, Calif.

ENTERPRISE COMPUTING

Storage made flexible

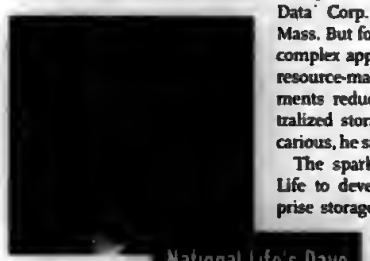
By Tim Ouellette

NATIONAL LIFE Insurance Co. is taking out an insurance policy against the blossoming storage requirements of its computer operations.

That policy is an enterprise storage strategy that focuses on the data itself rather than the storage device where the data resides.

"We want to be able to use any storage medium from any type of computer processor," said Dave Adams, director of networked operations at the Montpelier, Vt., mutual life insurance company.

Vendors have been listening to this type of user demand and are starting to combine storage — traditionally separated into specific mainframe, Unix, NetWare or other PC server storage devices — under one product roof [CW, Nov. 25, 1996]. But until the work is finalized and proved, some users such as Adams are forging ahead on their own with existing products to get the job done.



National Life's Dave Adams wants to focus on data, not storage media

This kind of effort provides an easier way to allocate new storage at smaller data centers that maintain less than 1T byte of data, said John MacArthur, a storage analyst at International Data Corp. in Framingham, Mass. But for larger sites where complex application-tuning and resource-management requirements reduce gains from centralized storage, it can get precarious, he said.

The spark that led National Life to develop its own enterprise storage architecture came from the proliferation of PCs and PC servers, which stored all sorts of mission-critical data in an unorganized fashion.

"Before, we found storage was so cheap to buy that we didn't worry about adding capacity" with new disk

Storage, page 44

Paramount casts IBM serial

▸ *Abandons SCSI for more reliable data retrieval*

By Matt Hamblen

PARAMOUNT PICTURES Corp. in Los Angeles recently found it couldn't rely on the connections that linked its PC LAN to important company data stored on disk drives.

"There were too many drive and channel problems where the drive would be left running but the system had lost a connection," said John Salter, executive director of client service at Paramount, a division of Viacom Entertainment Group in New York. That meant desktop users couldn't always get access to data or store it.

The source of the lost connections was the SCSI bus, Salter said. "We are using SCSI like everybody else, and it just isn't reliable enough for us."

Salter said he decided to drop SCSI and move to IBM's Serial Storage Architecture (SSA). In December, Paramount bought 550G bytes of SSA 7133 storage devices to replace its SCSI approach, which includes 14 large departmental file and print servers and 25 disk arrays.

The new equipment, including 60 drives in a rack, has been installed and tested but isn't yet running.

IBM marketed its SSA storage systems to the Unix server market until late last year. Now the systems are available for LANs using the Windows NT and Novell, Inc. NetWare network operating systems.

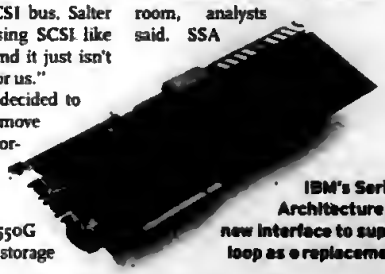
SCSI requires parallel cable transmission between servers and storage units, often with thick cables that typically run short distances, such as across a room, analysts said. SSA allows cable connections of up to 25 meters. And because the transmission is made with a serial loop, there are fewer connection points and, therefore, fewer potential points of failure. Observers said SSA provides quicker access to data than SCSI connections.

The IBM fiber-optic extender allows storage devices to be placed at greater distances from servers

At Paramount, SCSI cables could extend only 10 feet, which meant that the system servers had to be adjacent to a stack of disk drives that weren't all rack-mountable, Salter said.

Because SSA allows cable lengths of up to 25 meters, the 60-drive rack from IBM can be stored in a cabinet, freeing up room taken by the 25 RAID enclosures, Salter said.

That IBM is the only provider of



IBM's Serial Storage Architecture provides a new interface to support serial loop as a replacement to SCSI

Paramount, page 45

PROLIANT 800

Compaq aims ProLiant servers at workgroups

By April Jacobs

COMPAQ COMPUTER CORP. is betting that users are looking for the power of Pentium Pro chips in their servers even at the workgroup level.

The Houston company has been trying to break in to the midrange server market with its Pentium Pro-based ProLiant 5000 and 2500 servers. It is now aiming a new Pentium Pro machine, the ProLiant 800, at the workgroup server market.

In addition to extra processing power, the ProLiant 800 comes with enhanced management tools bundled with the machine.

Kent Polzin, director of technical operations at Atlanta-based Simmons Co., said his organization is moving toward Pentium Pro-based servers even at the workgroup level and doesn't expect to buy new servers based on older Pentium chips.

The ProLiant 800 features single or dual 180- or 200-MHz processors, as well as SmartStart 3.20 management software, designed to ease setup and network integration issues.

Polzin said server management software is an attractive feature if it can help start-up and configuration issues. SmartStart, for example, looks much

Compaq, page 45

Servers & PCs

Large Systems • Workstations • Portable Computing

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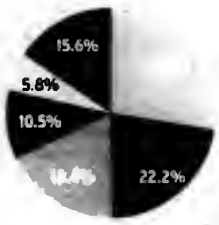
Digital Equipment Corp. last week expanded its range of storage management products for Windows NT. Introductions included an enhanced version of Networker Save and Restore for Windows NT that manages up to five digital linear tape (DLT) libraries with 52.8T bytes of backup storage, a DLT library capable of storing up to 70G bytes of information per cartridge and a 4mm digital audio tape drive with transfer rates as fast as 775K bit/sec.

Boca upgrades

Modem maker Boca Research, Inc. in Boca Raton, Fla., has announced an upgrade policy to 56.6K bit/sec. from its current line of 28.8K and 33.6K bit/sec. modems. The policy allows a user of any modem to upgrade to the company's new 56.6K bit/sec. modems based on new chip technology from Rockwell Semiconductor Systems to be released next month. Because standards heve yet to be set for products that use the high-speed modem technology, Boca officiels said "interim" products can be upgraded to standards-based products when ready.

1996 worldwide rigid disk drive shipments



Total shipments: 106 million

Source: Dataquest, San Jose, Calif.

ENTERPRISE COMPUTING

Storage made flexible

By Jim Ouellette

NATIONAL LIFE Insurance Co. is taking out an insurance policy against the blossoming storage requirements of its computer operations.

That policy is an enterprise storage strategy that focuses on the data itself rather than the storage device where the data resides.

"We want to be able to use any storage medium from any type of computer processor," said Dave Adams, director of networked operations at the Montpelier, Vt., mutual life insurance company.

Vendors have been listening to this type of user demand and are starting to combine storage — traditionally separated into specific mainframe, Unix, NetWare or other PC server storage devices — under one product roof (CW, Nov. 25, 1996). But until the work is finalized and proved, some users such as Adams are forging ahead on their own with existing products to get the job done.

National Life's Dave Adams wants to focus on data, not storage media

This kind of effort provides an easier way to allocate new storage at smaller data centers that maintain less than 1T byte of data, said John MacArthur, a storage analyst at International Data Corp. in Framingham, Mass. But for larger sites where complex application-tuning and resource-management requirements reduce gains from centralized storage, it can get precarious, he said.

The spark that led National Life to develop its own enterprise storage architecture came from the proliferation of PCs and PC servers, which stored all sorts of "mission-critical data" in an unorganized fashion.

"Before, we found storage was so cheap to buy that we didn't worry about adding capacity" with new disk

Storage, page 44

Paramount casts IBM serial

▸ *Abandons SCSI for more reliable data retrieval*

By Matt Hamblen

PARAMOUNT PICTURES Corp. in Los Angeles recently found it couldn't rely on the connections that linked its PC LAN to important company data stored on disk drives.

"There were too many drive and channel problems where the drive would be left running but the system had lost a connection," said John Salter, executive director of client service at Paramount, a division of Viacom Entertainment Group in New York. That meant desktop users couldn't always get access to data or store it.

The source of the lost connections was the SCSI bus, Salter said. "We are using SCSI like everybody else, and it just isn't reliable enough for us."

Salter said he decided to drop SCSI and move to IBM's Serial Storage Architecture (SSA). In December, Paramount bought 530G bytes of SSA 7133 storage devices to replace its SCSI approach, which includes 14 large departmental file and print servers and 25 disk arrays.

The new equipment, including 60 drives in a rack, has been installed and tested but isn't yet running.

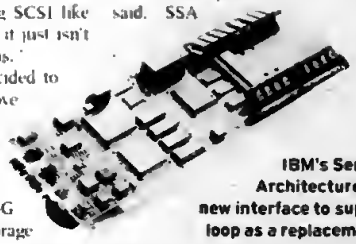
IBM marketed its SSA storage systems to the Unix server market until late last year. Now the systems are available for LANs using the Windows NT and Novell, Inc. NetWare network operating systems.

SCSI requires parallel cable transmission between servers and storage units, often with thick cables that typically run short distances, such as across a room, analysts said. SSA allows cable connections of up to 25 meters. And because the transmission is made with a serial loop, there are fewer connection points and, therefore, fewer potential points of failure. Observers said SSA provides quicker access to data than SCSI connections.

The IBM fiber-optic extender allows storage devices to be placed at greater distances from servers

At Paramount, SCSI cables could extend only 10 feet, which meant that the system servers had to be adjacent to a stack of disk drives that weren't all rack-mountable, Salter said.

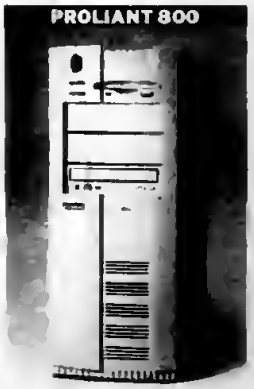
Because SSA allows cable lengths of up to 25 meters, the 60-drive rack from IBM can be stored in a cabinet, freeing up room taken by the 25 RAID enclosures, Salter said.



IBM's Serial Storage Architecture provides a new interface to support serial loop as a replacement to SCSI

That IBM is the only provider of

Paramount, page 45



PROCESSOR: Single or dual 180-MHz Pentium Pro

MEMORY: 512M bytes

SLOTS: 5 PCI

Compaq aims ProLiant servers at workgroups

By April Jacobs

COMPAQ COMPUTER CORP. is betting that users are looking for the power of Pentium Pro chips in their servers even at the workgroup level.

The Houston company has been trying to break in to the midrange server market with its Pentium Pro-based ProLiant 5000 and 2500 servers. It is now aiming a new Pentium Pro machine, the ProLiant 800, at the workgroup server market.

In addition to extra processing power, the ProLiant 800 comes with enhanced management tools bundled with the machine.

Kent Polzin, director of technical operations at Atlanta-based Simmons Co., said his organization is moving toward Pentium Pro-based servers even at the workgroup level and doesn't expect to buy new servers based on older Pentium chips.

The ProLiant 800 features single or dual 180- or 200-MHz processors as well as SmartStart 3.20 management software designed to ease setup and network integration issues.

Polzin said server management software is an attractive feature if it can help start-up and configuration issues. SmartStart, for example, looks much

Compaq, page 45

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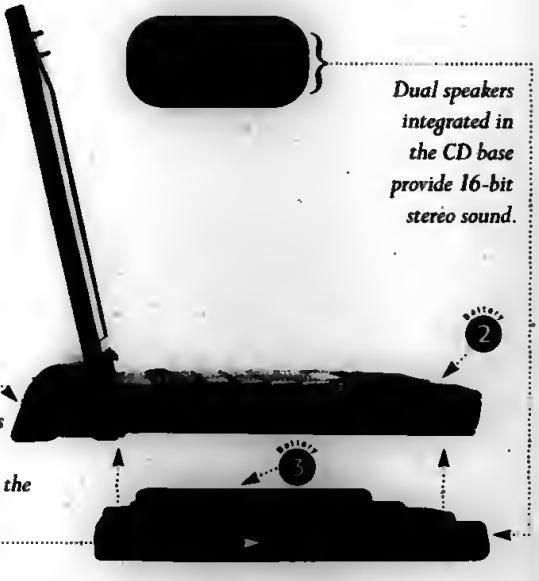

Dual speakers integrated in the CD base provide 16-bit stereo sound.

This base is detachable and houses the CD-ROM.

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COMPAQ

Has It Changed Your Life Yet?

Storage

CONTINUED FROM PAGE 41

arrays, Adams said.

"But then the extra storage didn't make it easier to work with data; it just stored the data deeper," he said.

In fact, an internal audit by National Life found it cost almost $250 per megabyte of data to manage storage in the old architecture.

So a team of about a dozen employees developed a storage insurance policy designed to protect against users wasting time hunting though PC file servers for the correct file. That policy also calls for backing up mission-critical data on unsecured PC file servers to system-managed mainframe disk or tape.

National Life is implementing the policy by doing the following:

- Cutting out all internal disk storage on the distributed Novell, Inc. NetWare servers and instead funneling everything to mainframe-based disk arrays. Adams estimated that the staff spends 80% of its time maintaining the LAN resources, whereas mainframe storage takes care of itself.
- Purchasing up-to-date disk arrays and archiving tape libraries from Storage Technology Corp.'s Iceberg — now sold by IBM as Ramac Virtual Array — and Nordique arrays. That lets storage administrators assign virtual disk volumes that give users the flexibility to store as much as they need without extra maintenance effort on the data center side.
- Consolidating 30 NetWare servers down to nine.
- Acquiring StorageTek's Central Archive Manager software to back up the NetWare servers using mainframe resources. Data can bypass the disk arrays and go straight to low-cost tape libraries.

Because the company is retiring older disk arrays, Adams said, the cost per megabyte of storage probably won't decrease until next year, when he and storage administrator Stuart White expect to see a significant drop.

Adams estimated the project is 80% complete, but it still requires a lot of work on the software side to regroup the network operating system, operations management and business applications properly to take advantage of the streamlined structure.

"There's a lot of moving parts in this process," Adams said. For example, as new disk arrays come on board, new software has to be maintained to properly back up various systems, and then another group must make sure the data can be moved off-site for disaster recovery purposes.

NEW PRODUCTS

DAISY DATA, INC. has announced Factory Mutual-approved PC workstations Series 4460 and 4480 for industrial settings where chemicals or ignitable concentrations of gas, dust or vapor are present.

According to the Enola, Pa., company, both models are sealed with a continuously welded stainless steel enclosure with internal fans and can be purchased with a 14-, 17- or 20-in. Super VGA color monitor and a hard drive of up to 2G bytes. The 4460 is for Division 1 hazardous areas, and the 4480 is for Division 2 areas.

Pricing starts at $10,688 for the 4460 and $7,605 for the 4480.

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MERIDIAN DATA, INC. has announced the use of 12-speed CD-ROM drives for its CD Net CD-ROM server and CD NetROM disc array product lines.

According to the Scotts Valley, Calif., company, its CD-ROM network servers and storage products now use 10/100M bit/sec. Ethernet adapter cards. The CD-ROM drives deliver a 50% increase in simultaneous data transfer throughput of compact disc databases, compared with older eight-speed drives.

The 12-speed CD NetROM storage subsystem with 10/100 Ethernet ability costs about $1,000.

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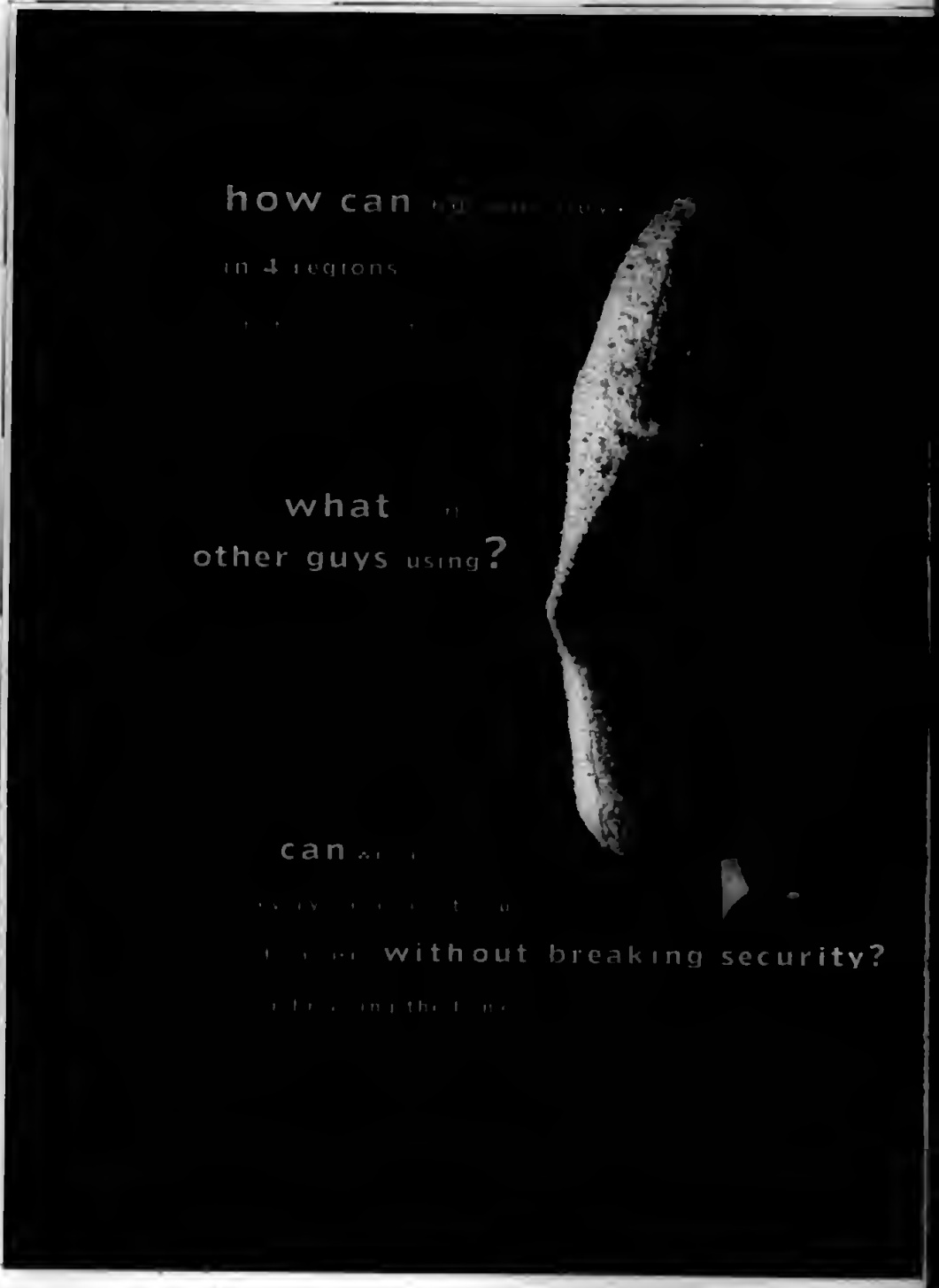

Paramount casts IBM serial

CONTINUED FROM PAGE 41

SSA is both good and bad, Salter said. It reduces the number of vendors Paramount has to deal with when problems may arise.

"I've had nightmarish problems in the last couple of years between the operating system, the SCSI, the drives, the CPU and the RAID enclosure. And [for] one problem, I had to talk to five people," Salter said. Now Salter will only have to talk to IBM for storage and to Novell for any problems with NetWare, he said.

There is also a risk, Salter said. "I'm somewhat nervous, particularly because SSA is new on the PC environment. I realize I'm somewhat on the bleeding edge of that," he said.

Tom Lahive, a storage analyst at International Data Corp. in Framingham, Mass., said he agreed that the downside of SSA is that it is available only from IBM.

IBM sold $480 million of SSA products into the Unix server marketplace last year, he said, but he hasn't tracked SSA sales in the LAN server market because it is so new.

One Midwest company recently installed SSA hardware with 160 drives that store up to 600G bytes of data. SSA helped reduce storage space, but it is also speeding up the data transfer rate, said an official at the company who asked to remain anonymous. One task that used to take 10 minutes now takes only three minutes, he said.

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Compaq

CONTINUED FROM PAGE 41

more useful than previous versions because it now supports Novell, Inc.'s NetWare, he said.

Polzin said his company already integrates Compaq's Insight Manager, which helps with server management, into its overall management software.

CUSTOM UPDATES

On the server management side, Compaq will offer a World Wide Web-based Info Messenger Service that will deliver customized updates, such as new drivers, to information systems professionals.

And its Integration Server software will allow network manager to replicate server configurations across servers.

The move toward Pentium Pro chips comes as no surprise to analysts.

Analysts at Workgroup Strategic Services, Inc. in Portsmouth, N.H., and International Data Corp. in Framingham, Mass., said Pentium Pro-based servers fit the Windows NT environment better than Pentium-based machines because they deliver better performance for the resource-hungry operating system. Narrowing price gaps between the two chips also makes the Pentium Pro more attractive and affordable.

Jen Munson, an analyst at Workgroup, said Compaq's Pentium Pro strategy is also a response to a growing threat from rival Hewlett-Packard Co. in Palo Alto, Calif., which is gaining market share in the server arena. Compaq already has a 25% share of the U.S. server market, and HP now has 13% of the current market.

SHORT

Storage for Tandem

ECCS, Inc. is teaming with Tandem Computers, Inc. to provide native storage support for Tandem's ServerNet clustering technology. ECCS, in Tinton Falls, N.J., will optimize its Synchronix RAID storage products to improve data transfer between application servers when running in a ServerNet environment. The first storage products will be targeted at Windows NT networks.

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UP, UP AND AWAY

Enterprise client/server software revenue

1995	$4B
1996	$5B*
1997	$7B*
1998	$10B*
1999	$13B*
2000	$15.5B*

*Projected

Source: [illegible], Boston

Software for handhelds

Mondeluxe Technologies, Inc. in Vancouver, British Columbia, a developer of sales force automation software, said it will release a product that enables users of U.S. Robotics Corp.'s Pilot handheld computer to better synchronize data with their desktop PCs. Mondeluxe PilotLink lets users place the Pilot in its cradle and automatically synchronize data on the desktop PC. It will be available later this month.

Dynamic cuts price

Dynamic Software has upgraded its [illegible] price of its object-oriented analysis and design software, Objectiveness Version [illegible]. The Burlington, Mass., company said the upgrade includes synchronous engineering, which lets applications share [illegible] the life of an application. Pricing begins at $9,[illegible].

Sybase phases out support for older SQL Server versions

By Craig Stedman

UPGRADE TIME is arriving for Sybase, Inc. users.

Hoping to close the book on an unpleasant chapter, the company is phasing out support for older versions of its SQL Server database.

Sybase, which last year was wracked by big losses and a management shake-up, two weeks ago sent "Dear customer" letters to users, informing them that the support plug will be pulled on SQL Server versions 4.9.2 and 10.

Version 10 will be dropped on Unix platforms by year's end, while Version 4.9.2 will follow by mid-1998, according to Sybase's letter.

Palomar's Jonathan Lang

Sybase is evaluating "alternative methods" for users who can't or don't want to upgrade

The Emeryville, Calif., company was forced to keep the 4-year-old SQL Server 4.9.2 alive much longer than it wanted because of the weak throughput many users encountered with Version 10. Customers who were scared away from upgrading to that release will have to jump to SQL Server 11, which was introduced late in 1995.

Sybase's move has prompted companies such as United Grain Growers Ltd. to bite the upgrade bullet. The Canadian grain and farm products distributor still uses SQL Server 4.9.2 at its 180 grain elevators and has Version 10 at its home office in

Sybase, page 48

Vendors cater to verticals

By Randy Weston

USERS ARE STARTING to get packaged client/server applications to call their own as vendors realize one style doesn't fit all and begin to cater to vertical industries.

All the leading enterprise software makers, such as SAP AG, Oracle Corp., PeopleSoft, Inc. and The Baan Co., are

Vertical, page 48

Vertical market presence

	[illegible]	[illegible]
Aerospace/defense		■
Automotive		■
Chemical		■
Consumer products		
Contracting		■
Energy (oil and gas)	■	
Financial services		
Food/beverage		■
Government	■	
Health care		
Higher education	■	
High tech/electronics		■
Pharmaceuticals	■	
Retail		
Telecommunications		
Utilities		

Corel hopes to satisfy 'suite' tooth for Office users

▸ *Win 95 WordPerfect Suite gets update*

By Lisa Picarille

COREL CORP. has ambitious plans to deliver a broader range of productivity products to satisfy users' taste for suites.

To increase its share of the lucrative suite market, the Ottawa-based company plans to release an updated Windows 95 version, an upgrade for Windows 3.1x, a handful of vertical market releases and a Java-based version of its Corel WordPerfect Suite — all this year.

First on tap is Corel WordPerfect Suite 7 for Windows 3.1x. Due next month, the upgrade includes the latest versions of the applications that compose the suite: WordPerfect, Quattro Pro, Corel Presentations, Paradox, Corel TimeLine, Envoy, Netscape Communications Corp.'s Navigator, Corel Flow

Corel, page 48

Preliminary 1996 Unix market statistics

- Overall Unix market grew by 12%
- Unix RISC workstations revenue fell from $12.1 billion to $11.4 billion
- Small-scale Unix servers (less than $100,000) grew 22%
- Midrange Unix servers ($100,000 to $999,999) grew 34%

Source: International Data Corp., Framingham, Mass.

UNIX GROWTH

Windows NT closes gap on low-end Unix servers

By Jaikumar Vijayan

DESPITE RUMORS of its imminent demise, the Unix market continued to thrive last year. Still, its growth is slowing.

Pulling it down is the increasing popularity of Intel Corp. hardware platforms that run Microsoft Corp.'s Windows NT, especially at the low end of the Unix workstation and server space.

According to preliminary figures from International Data Corp. (IDC) in Framingham, Mass., Unix systems revenue grew 12% last year — from $30.6 billion to $34.3 billion (see chart). That was slightly lower than the 14.7% growth that IDC had predicted.

The numbers show that more corporations are choosing mixed-platform environments, analysts said. Such environments typically have large Unix servers that power most enterprise applications and Windows NT boxes that handle departmental tasks, observers said.

"Unix is in a very strong position at the high end. ... It is at the low and midrange where it is coming under pressure" from less expensive Windows NT servers and workstations, said Andrew Allison, editor of "Inside the New Computer

Unix, page 48

Vertical industries

CONTINUED FROM PAGE 47

releasing software packages that target specific industries, from pharmaceutical makers to the automotive industry.

"It's excellent for the user because they are going to get a vendor that speaks the language of their vertical industry, understands the business issues of it and addresses those issues in the software," said Clare Gillan, an analyst at International Data Corp. in Framingham, Mass.

MORE PACKAGES COMING

Oracle recently announced initiatives for the pharmaceutical industry and plans to announce several more industry-specific software packages in the coming months.

Similarly, PeopleSoft announced Jan. 13 at the National Retail Federation Conference in New York that it is integrating Intrepid Systems, Inc.'s Evolution retail management software with PeopleSoft's human resources and financial software to create a retail industry package.

> Clients who get industry-specific software often give update input

SAP recently announced a software package for the oil industry called IS-Oil, and Baan is continuing its push in the automotive and process industries (see chart, page 47).

Genentech, Inc., a biotechnology company in South San Francisco, is installing Oracle's pharmaceutical application package.

"It's beneficial to be able to buy something off the shelf without having to develop applications in-house," said Jill Vath, project migration manager of the Oracle installation at Genentech.

Vath said the Oracle package gives Genentech a standard way to format data from drug development tests that the U.S. Food and Drug Administration requires the company to document. That eliminated Genentech's prior need to use custom-designed software to format its testing data.

Vath said an Oracle division dedicated to pharmaceuticals makes it easier for Genentech's voice to be heard when looking for more functionality in later software releases.

As vendors diversify into more niche markets, the trend of providing industry-specific software should continue, Gillan said.

"As vendors evaluate their product line, they look at where they have been winning without a specific industry strategy," Gillan said. "If the vendor is winning in a vertical and doesn't have resources concentrated there, then it makes sense to put money there."

Unix

CONTINUED FROM PAGE 47

Industry," a newsletter in Carmel, Calif.

IDC estimated that about 720,000 Windows NT licenses were sold last year, compared with about 390,000 in 1995.

"What is going to happen is that IT managers are likely to start mixing the type of servers they buy based on database and application needs,' said Jean Bozman, an analyst at International Data Corp. in Mountain View, Calif.

That trend is expected to accelerate as more Unix applications migrate to NT and more powerful Intel hardware hits the market later this year, analysts said.

"Clearly there is some potential for some major savings in Windows NT in the long haul," said longtime Unix user Joseph Pollizzi, deputy head of the Science and Engineering Systems Division of the Space Telescope Science Institute in Baltimore.

The institute plans to install about 15 Pentium Pro workstations to run some technical and office automation applications.

It also plans to test some of its larger scientific applications on NT servers. "We would be remiss if we did not investigate NT," Pollizzi said.

Despite slowing growth in the low-end market, Unix systems continue to dominate in areas such as application and Internet servers, and in database and online transaction processing applications.

Unix systems typically scale much higher and have been tested more in enterprise applications than Wintel hardware has, analysts said.

Sybase phases out support

CONTINUED FROM PAGE 47

Winnipeg, Manitoba.

United Grain was already testing SQL Server 11 at headquarters, but Version 4.9.2 still has enough power for the grain elevators, said Terence Light, manager of systems development at the company. Now the Unix servers at the elevators will have to be expanded to run SQL Server 11, at a potential cost of up to $250,000, he said.

"It forces our hand to do this, when it's something we might have dragged our butts on," Light said.

"Ordinarily, I like us to be the ones in the middle of making a decision to move [to new software]. But I can see why Sybase is doing this at this point," Light said.

Several users who moved up to SQL Server 11 last year said Sybase appears to have fixed the performance problems in Version 10.

Paloma Partners, an investment firm in Greenwich, Conn., got a 20% boost in query speeds after it upgraded two of its four databases from SQL Server 10, said Jonathan Lang, vice president of MIS at the company. Things should get even faster with new performance tuning features in Version 11, he said.

SQL Server 10 wasn't nearly as open for tuning, Lang said. "You just crossed your fingers and hoped it would do its thing," he said.

But as the amount of data and number of end users grew, the database "started to take longer and longer" to run complex queries, Lang said.

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Corel updates suites

CONTINUED FROM PAGE 47

and Scotts Valley, Calif.-based Starfish Software, Inc.'s Sidekick and Dashboard products.

Corel WordPerfect Suite 8, an upgrade to last year's Windows 95 version release, offers features and enhancements that focus on increased productivity and improved performance. To accomplish those goals, Version 8 adds help wizards and user assistants that are shared across all applications.

Version 8 also sports an updated interface across the applications and a property bar that offers functionality specific to the active application. Users will also get version control features and a file format that is compatible with previous releases of the Corel suite.

CHOOSING OFFICE 97

Microsoft Corp.'s Office 97, which was released earlier this month, was harshly criticized for having a new file format that is unreadable by previous Office versions [CW, Jan. 20].

In spite of those complaints, some Windows 3.1x users who are also long-time WordPerfect users are moving to Windows 95 and opting for Microsoft Office 97 in the process.

John Cebula, a program research specialist at the New York State Education Department in Albany, which has more than 600 copies of Corel WordPerfect Suite for Windows 3.1x, said his organization is migrating to Office 97. But not everyone is happy about the decision.

"It's sort of a sore point," Cebula said. "We hired a consultant, and he suggested Office 97. We have a lot of work experience, macros written and training invested [in WordPerfect Office], but that didn't seem to matter. It's going to be frustrating and very expensive to go to Office."

Users in the legal, medical and construction fields will get tailored versions of the Corel WordPerfect Suite.

Most of the planned vertical versions, due in the first half of the year, include the basic applications from the standard version of Corel's suite but add spell checking, dictionaries and templates that are specific to a particular industry.

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70. Mining/Construction/Petroleum/Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./Retailer
95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)

IS/MIS/DP MANAGEMENT
19. Chief Information Officer/Vice President/Asst. VP IS/MIS/DP Management
21. Dir./Mgr. MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
80. Sys. Integrators/VARs/Consulting Management

CORPORATE MANAGEMENT
11. President, Owner/Partner, General Mgr.
12. Vice President, Asst. Vice President
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
95. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No
Internet Products ☐ Yes ☐ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
(a) ☐ Internet software
(b) ☐ Internet browsers
(c) ☐ Web authoring/development tools

5. Do you use the Internet? ☐ Yes ☐ No

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30. Medical/Law/Education
40. Wholesale/Retail/Trade
50. Business Service (except DP)
60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./Retailer
95. Other_____ (Please Specify)

2. TITLE/FUNCTION (Circle one)

IS/MIS/DP MANAGEMENT
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22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
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App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No
Internet Products ☐ Yes ☐ No

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(a) ☐ Internet software
(b) ☐ Internet browsers
(c) ☐ Web authoring/development tools

5. Do you use the Internet? ☐ Yes ☐ No

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FRANKLY SPEAKING

Apple's prodigal father

FRANK HAYES

WELCOME BACK, Steve Jobs. Really.

For the past month, the Apple faithful have been celebrating the return of the company's charismatic prodigal founder. But amid the cheers, Apple has virtually ignored the impact its purchase of Next Software will have on its business customers.

Apple insists Jobs will just be a part-time consultant. But some true believers hope he will once again manage to gain control of the struggling company — even though Jobs was drummed out of the company in 1985 because he nearly ran Apple into the ground.

People forget things like that. They forget that Apple was in such terrible trouble 12 years ago largely because Jobs failed to deliver on business-oriented products such as the Macintosh Office, killed the Macintosh XL just months after it began to ship and vented his contempt for business users in TV commercials such as "Lemmings."

MIS-SED IMAGE

You probably remember "Lemmings" if you're over 30. Its single, unforgettable image was a long row of neatly dressed business people, blindfolded, walking one after another off the edge of a cliff.

That was what Steve Jobs thought of the corporate IS people who had failed to embrace his Macintosh.

That's the Steve Jobs — proud, angry, uncomprehending — whom the Apple faithful are welcoming back.

Trouble is, that isn't the real Steve Jobs. Not anymore.

Jobs learned a lot during his decade of exile — things that every Apple executive, product designer and developer could also learn.

For one thing, after he left Apple, Jobs had to deep-six his contempt for corporate IS. Those were his customers — in banks, car manufacturers and Wall Street giants.

Next never had the luxury that Apple did of simply shoving products out the door and leaving retailers to peddle them. Jobs had to learn to listen to his corporate customers — and he did.

At Apple, that contempt for IS — the spirit of "Lemmings" — is still alive and well. Not at the top levels, perhaps, but solidly and deeply ingrained through the ranks.

Jobs also learned the value of using other people's technology.

He acquired the core of NextStep from Carnegie Mellon University — much as Microsoft got NT's technology from Digital and Sun got its Unix from Bell Labs. And Jobs worked to tailor that technology to the needs of IS.

But at Apple — the company with the worst case of "Not Invented Here" syndrome in the industry — there's no willingness to turn to anybody else for technology or anything else.

If it wasn't invented at Apple, it's pointless.

At Apple, mainframes are dinosaurs, Powersoft's PowerBuilder is for wimps, and any problem can be wished away with an AppleTalk network and boasts of how Windows 95 is really just Macintosh '84.

And that's why neither a rehashed NextStep nor a returned Steve Jobs will suddenly make Apple matter to corporate IS shops.

The kinds of enterprisewide, mission-critical problems IS faces every day need more than that.

They need an Apple that understands IS.

And if Jobs can make that miracle happen, he deserves to be welcomed back with open arms. Really.

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

OpenDoc/JavaBeans link touted

By Sharon Gaudin

IBM, SUN Microsystems, Inc. and Apple Computer, Inc. are bridging the application development gap between the desktop world of OpenDoc and the networked world of JavaBeans.

But analysts and two longtime OpenDoc users said it may not be enough to kick-start momentum behind IBM's OpenDoc architecture.

Since its introduction two years ago, OpenDoc has had a tough time building up steam in a marketplace dominated by Microsoft Corp.'s ActiveX and filled with hype about Sun's Java and JavaBeans.

"There just isn't a flood of people going to OpenDoc," said a longtime OpenDoc developer who requested anonymity. "OpenDoc is getting lost in the noise factor of Java, JavaBeans and ActiveX. . . . [OpenDoc is] going to need more than a bridge with JavaBeans." A systems manager at a major U.S. bank said he thinks the bridge will be a shot in the arm for the architecture. But he said he hopes it is strong enough to draw attention away from ActiveX. He said it will help to simplify a complex technology.

"OpenDoc, on its own, is fairly complex," the bank systems manager said. "With this bridge, developers could just grab a JavaBeans component and create OpenDoc components with it — much simpler. Then they don't have to grapple with the complexities of writing to the OpenDoc [application programming interfaces]."

DEVELOPMENT ENVIRONMENTS

BUILDING A BRIDGE

IBM and Apple are developing a bridge between the two component architectures that will allow components from JavaBeans to be run in OpenDoc and vice versa. The aim is to simplify the work of application developers who use both.

The bridge, which is a set of components that will enable one architecture to read and invoke components from the other architecture, is slated to ship by June. The bridge will be built in to OpenDoc and JavaBeans, according to Sun and IBM.

An architecture is the plumbing that enables components and applications to communicate with one another.

OpenDoc is a heavyweight component architecture built for desktop applications. JavaBeans is a lightweight, Java-based component architecture designed to run quickly and efficiently over the Internet or intranets. It is being specifically aimed at Sun's network computer, the JavaStation. The JavaBeans Developer Kit is still in beta.

Testing tools market fills to brim

By Sharon Gaudin

THREE COMPANIES are upping the ante in the automated testing tools arena with releases due within the next few months.

The releases are coming during an upswing in the testing tools market. With many information systems offices half a world away and programs made up of hundreds of components, corporate and independent developers are turning to tools that will detect and correct errors before they hit the desktop.

CYRANO SUITE

Cyrano, Inc., a Newburyport, Mass.-based company formed by the merger of Performance Software and IMM Corp., is teaming up with SQA, Inc. in Burlington, Mass., to add SQA's Robot and Manager to Cyrano's family of testing tools known as the Cyrano Suite. Cyrano Robot, which executes the testing, and Cyrano Manager, which sets the criteria for the tests, will add power behind the client side of the wide-ranging tool set. Both tools are expected to be added to the suite in April.

NuMega Technologies, Inc. in Nashua, N.H., is expected to release its first set of tools for Microsoft Corp.'s Visual Basic programming language. NuMega CodeReview was designed to examine the source code before it is compiled and run. And NuMega FailSafe is a component built to be inserted in a program so it can report on any problems while the program is running.

NuMega has focused solely on testing Microsoft's C++ and Borland International, Inc.'s Delphi tools. Cyrano's suite was built to test programs written with any tools on any platform.

Richard Punko, senior vice president of architecture at Shaw Data Services, a financial software developer, is buying Cyrano's suite.

"As time goes on, the pressure has been put on us to deliver more quickly. These automated tools have made our jobs much easier," Punko said.

Gartner Group, Inc. said the client/server automated testing tools market will jump from $95 million in 1995 to between $475 million and $650 million by 1999. Adams, Harkness & Hill, Inc. also predicts an increase, from $380 million in 1995 to $2.3 billion in 2000.

HP NetServer E and LD Pro Series

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HP NetServer LH/LH Pro Series

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Briefs

Intel switches gears

In a move to expand its networking product line beyond Fast Ethernet hubs and adapter cards, Intel Corp. announced plans to buy Ethernet switch and router vendor Cam Technology in Copenhagen for $72 million. With the acquisition, Intel will work to develop a line of products that includes a low-cost Fast Ethernet switch. The companies didn't say when that would come to market of the Fast Ethernet switch that results from Intel's Contemporaneous, Inc.

[illegible]

[illegible] in Houston, [illegible] will change its name to Intellum and announce wireless Notes and Lotus Development Corp. CC:Mail messaging services. The wireless will support access to Lotus messaging products [illegible] Data and [illegible] public networks.

[illegible]

[illegible] in Irvine, Calif. introduced the [illegible] frame-relay [illegible] (FRAD) series, which [illegible] to [illegible] services to small and [illegible] offices. The products [illegible] greater [illegible] flexibility of [illegible]

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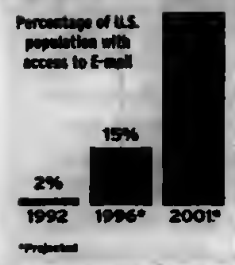


Network gives resort a lift

▸ *Sundance taps IntranetWare for LAN links*

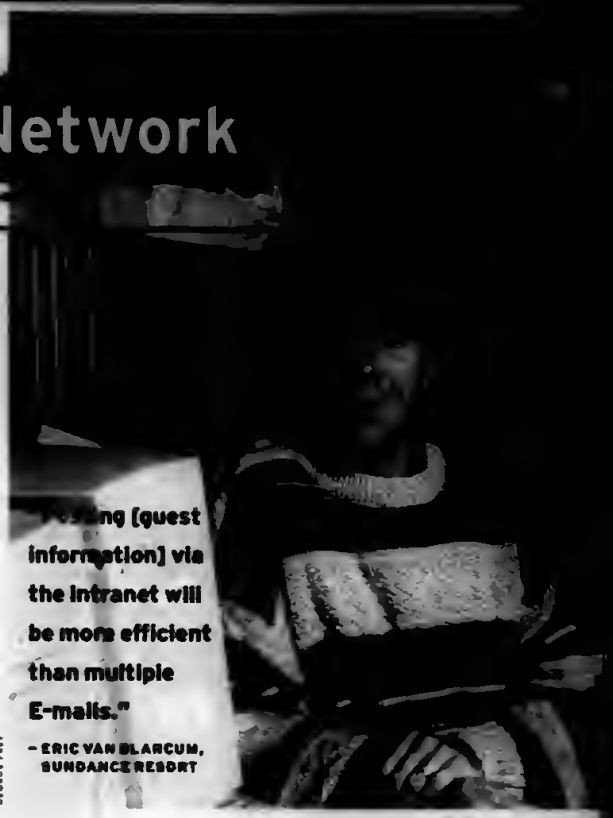
By Laura DiDio

NETWORKING AT the Sundance ski resort in Utah was all uphill until the group installed Novell, Inc.'s IntranetWare to build an advanced corporate network that links all the LAN segments on the resort's 450-acre campus.

A fire in June that virtually wiped out the resort's network infrastructure spurred the network upgrade, said Eric Van Blarcum, Sundance Resort's manager of information services. The destruction paved the way for the installation of a fiber-optic network, wide-area links and applications such as an alphanumeric paging system.

Cost was a sensitive issue because the resort's insurance firm had set specific budget guidelines for equipment purchases. Sundance's criteria for its intranet included the ability to handle up to 75 simultaneous users while maintain-

Sundance, page 56



[illegible]ing [guest information] via the Intranet will be more efficient than multiple E-mails."

– ERIC VAN BLARCUM, SUNDANCE RESORT

GEORGE FEST

STELLE JONSTON

Mercer's Patrick Brennan

"How long is it going to take . . . leading vendors to come up with software upgrades?"

• SNA alternative?

Cascade software offers frame service guarantees

By Kim Girard

SOME telecommunications carriers soon will offer users a better way to prioritize IBM SNA and other time-sensitive traffic on their frame-relay backbone.

Westford, Mass.-based Cascade Communications Corp. last week introduced Priority Frame, a technology that will let carriers offer quality of service guarantees at four levels.

That means network managers can put time-sensitive legacy data or voice traffic on high-priority connections, while electronic mail, files to be transferred and other material would be on lower-priority, less expensive lines. The new categories are loosely based on Asynchronous Transfer Mode service classes.

The benefit for users moving to frame relay is an estimated 40% savings compared with sticking with an SNA network, according to analysts. However,

Frame relay, page 56

Notes combo still needs some TLC

By Garrett Michael Hayes

LOTUS DEVELOPMENT CORP. has released its newly renamed Domino, Powered by Lotus Notes 4.5, which combines in one package the newest version of Notes and the recent Domino add-on for Internet connectivity. This is the combination touted by Lotus parent IBM in its recent "Santa Claus" commercials.

Notes, page 57

PRODUCT REVIEW

Domino, Powered by Lotus Notes 4.5

Lotus Development Corp. Cambridge, Mass.

PROS

- Integrates scheduling with mail
- Has new Web functionality

CONS

- Requires care and patience to manage
- Some Web features have irregularities

Availability: Now

Price: $995 to $2,995 for server version

Novell links NT clients to NetWare

By Laura DiDio

NOVELL, INC. last week began shipping a beta version of Novell Workstation Manager, a software utility that lets businesses manage Windows NT Workstations through Novell Directory Services.

WINDOWS NT CLIENTS

NetWare sites that added Microsoft Corp.'s NT Workstation previously had to install NT Server to support and manage accounts and profile information, said Neil MacDonald, an analyst at Gartner Group, Inc. in Stamford, Conn.

Unfortunately, that doubled users' administrative burdens "since it left them with two separate directories — Novell Directory Services and the less technically advanced Windows NT Domain Directory, which is NT's weakest feature," MacDonald said.

Beta-tester Berry Mobley, network administrator at the University of South Carolina's College of Liberal Arts in Columbia, said his administrative duties have been reduced since he installed Novell Workstation Manager to monitor 70 NT machines.

Instead of creating 70 separate NT Workstation accounts, Mobley creates the user account configuration and profiles just

Novell, page 57

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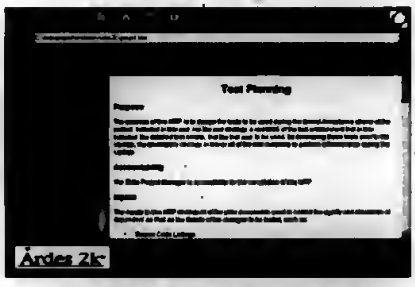

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Microwave, infrared products target LANs

▸ *Wireless networking gaining acceptance*

By Bob Wallace

SHORT-DISTANCE networking products that let users link LANs via microwave and infrared technologies will try to unseat WAN gear as the staples at the ComNet conference next week in Washington.

COMNET

Among the products that will debut at the show are a microwave system and infrared offerings, both of which quickly link LANs in nearby buildings without cabling, and a software package that automates LAN and WAN network planning.

"Users can save big by using microwave to link facilities; it's typically much cheaper than installing your own fiber or having a local carrier install their own and lease capacity on it to you," said Earl Perkins, manager of network projects at Entergy Services, Inc., an electric company in Gretna, La., with a sprawling private microwave network in the Southeast.

Microwave is a tried-and-true technology, and infrared merits attention, too, he said.

MICROWAVE CONNECTIONS

Southwest Microwave, Inc. in Tempe, Ariz., will unveil the FastWave Series 990 LAN Microwave Radio Systems, which lets users link Ethernet LANs up to a half-mile away.

It supports data speeds of 10M bit/sec. and was designed primarily for linking buildings in a campus. Because the radio frequency band that the FastWave Series 990 uses isn't heavily congested, information systems managers don't have to apply for a frequency license from the Federal Communications Commission. That process can take from four to eight weeks.

Users need only be sure there is a clear line of sight between linked locations.

Performance of microwave systems in general slips during heavy rains. Southwest Microwave officials said system uptime is 99.95%. The FastWave Series 990 is available and costs $14,990. That includes a two-year warranty.

VENDORS WITH SHORT-RANGE WIRELESS TECHNOLOGY

Company	Product	Distance	Speed
Southwest Microwave	FastWave Series 990	½ mile	10M bit/sec.
AstroTerra	TerraLink 4-155	1¼ miles	155M bit/sec.

INFRARED LINKS

AstroTerra Corp. in San Diego, Calif., has a longer-range goal. Its TerraLink 4-155 can support data rates of up to 155M bit/sec. for distances of up to 1.2 miles.

Like microwave technology, infrared systems need a clear line of sight between locations and can be adversely affected by heavy rain and snow.

> "Users can save big by using microwave to link facilities."
> – Earl Perkins, Entergy Services

Unlike most microwave systems, infrared doesn't require FCC licensing and is more secure.

TerraLink 4-155 can be equipped with a coaxial cable interface that supports a 44.736M bit/sec. line rate or a fiber interface that supports the 155M bit/sec. line rate. The system is available, but pricing wasn't provided.

NETWORK PLANNING

CACI Products Co. in La Jolla, Calif., will announce Comnet Predictor, an automated network-planning tool that predicts LAN and WAN performance.

Using network topology and traffic data, Comnet Predictor will let network managers and planners create a model of their network and quickly analyze the impact of proposed changes.

The changes can be the addition of traffic or locations to the network and the alteration of network topology, equipment and bandwidth. Comnet Predictor runs on Windows NT and Unix platforms. Pricing and availability will be announced at the show.

Frame relay

CONTINUED FROM PAGE 53

only about 20% of 1 million SNA ports are connected to frame relay. Many network managers have been reluctant to put SNA traffic over frame-relay lines because of performance problems.

For Rick Meier, technical operations specialist at Osram Sylvania, Inc. in Danvers, Mass., better management of SNA traffic comes too late. The company started running SNA traffic over frame-relay links more than three years ago but is moving toward a client/server network.

"We had problems with SNA [over frame]," Meier said. "We were dropping SNA [sessions] all over the place."

Besides giving priority to legacy traffic, Cascade's new service guarantees could benefit users seeking to piggyback delay-sensitive voice traffic over a frame-relay network. "These carriers have been dragging their feet on voice," and customers want the service, said Rick Malone, a principal at Vertical Systems Group, a consultancy in Dedham, Mass.

The technology comes as a simple software upgrade of Cascade's B-STDX 8000 and 9000 switches, which carriers will likely use to offer multiple service levels to users by the end of the year.

The five regional Bell operating companies that use Cascade switches are likely to beta-test the software — which is to ship midyear — during the second quarter, said Heidi Brandte, a senior product marketing manager at Cascade.

The software determines the best path for each permanent virtual circuit into the network, with delay-sensitive SNA traffic always serviced first.

Other equipment vendors are working on quality of service offerings, but the Frame Relay Forum has yet to develop a standard, leading to some user skepticism.

> "We had problems with SNA [over frame]. We were dropping SNA [sessions] all over the place."
> – Rick Meier, Osram Sylvania

"How long is it going to take your leading vendors to come up with software upgrades to take advantage of this?" asked Patrick Brennan, network operations manager at Mercer Management Consulting, Inc. in New York.

Sundance taps IntranetWare for LANs

CONTINUED FROM PAGE 53

ing full throughput.

Van Blarcum said IntranetWare turned out to be a less expensive alternative than competitor Windows NT Server because "NT Server has a lot of memory constraints that would have required us to install five Windows NT file servers to realize the same performance level of a single IntranetWare server."

IntranetWare, Novell's all-in-one Web server and Intranet server, also includes NetWare file and print services, Novell Directory Services (NDS) and C-2 security.

CONTROLLED ACCESS

Sundance uses all these services to make its corporate intranet publicly accessible while preserving its company secrets behind NetWare access controls.

The Sundance Resort intranet runs functions that include electronic mail, reservations, billings, special guest requests, catering, conferences, food inventory and audiovisual requirements for meetings.

IntranetWare and Novell's GroupWise groupware package will also let Sundance Resort create and distribute a photo list of special guests, their biographies and preferences to the hostesses and manager, Van Blarcum said. "Posting it via the intranet will be more efficient than multiple E-mails," he said.

The Sundance Intranet runs functions that include E-mail, reservations, special guest requests and conferences

Sundance's end users have realized immediate benefits from the intranet. Scott Beck, the resort's director of sales, said the corporate intranet saves him time and cuts down on confusion.

"Prior to this, we used to print out hard copies of our 10-day forecast report on Sundance's activities and special promotions. Now we can distribute everything via IntranetWare and make immediate updates as needed. That saves me 30 minutes a day," Beck said.

The one big downside that Van Blarcum has encountered is the lack of a unified NWadmin facility that allows network administrators to simplify and integrate all the elements in their NDS trees.

"Currently, I have to maintain separate interfaces for all my Novell applications, including IntranetWare, GroupWise and ManageWise. It's a management nightmare — very complicated and time consuming because I have to create user profiles for each application," Van Blarcum said.

Notes/Web combo improves ease of use

CONTINUED FROM PAGE 53

PRODUCT REVIEW

We unwrapped a late beta version of the package and found that Notes still requires a good deal of care and patience to manage. But we also found that the features in this version make it far more useful out-of-the-box for common business infrastructure tasks.

We installed the server software on a Dell Computer Corp. PowerEdge 5100, dual Pentium system, under Microsoft Corp. Windows NT Server 3.51. The client software was loaded on a mixture of Intel Corp. 486- and Pentium-based systems running Windows 95 and Windows NT Workstation 3.51. Most clients were connected via a 10M bit/sec. Ethernet LAN. One client was connected via a TCP/IP connection across the Internet.

INSTALLATION

Installation was fairly straightforward, although it took two attempts to complete the process.

The product is delivered on three CDs, one each for Unix and Windows NT servers and the third for the Simple Mail Transfer Protocol. Server installation takes up to 145M bytes, compared with about 69M bytes on Notes 4.0. Tailoring is accomplished with a Server Setup routine automatically invoked the first time you start the product.

Standard client installation required a hefty 53M bytes of storage, nearly double the previous client release. For one client workstation, that forced us to install the software to a network drive, which had a noticeable impact on performance.

ADMINISTRATION

Lotus has added several nice features for the Windows NT environment, including the ability to add users to Notes from the NT User Manager. That allows users to log on once to access Notes and NT and to pass Notes event-logging to NT's Event Viewer.

Adding Notes users from the NT User Manager is a great improvement over Notes' routines, particularly because it adds several defaults such as the names of the Notes Server and Domain. But security-conscious administrators will want to pay close attention to the default access permissions assigned.

A single-password log-on for NT and Notes is attractive, but in practice, it doesn't seem to provide a lot of value. In fact, we were delighted to discover that we could force Notes to check passwords anyway.

MAIL, CALENDARING & SCHEDULING

The most obvious functional changes to Notes are in the mail interface. Lotus has integrated calendaring and scheduling into the mail system and made a good first pass at the effort.

Features such as "Find Free Time" for scheduling a meeting are presented with a good visual metaphor. We especially liked the way Notes treats the scheduling of rooms as separate from other resources. But when we invited someone who hadn't set up his calendar, Notes erroneously told us that the meeting time was "OK for everyone." It also failed to send an invitation to that user.

WEB NAVIGATOR

Another big change is the addition of the Web Navigator. This function provides a mechanism for users to reach the World Wide Web and tools to control that access at the personal and system levels.

With the Web Navigator, a user cruises the Web as with Microsoft Corp.'s Internet Explorer or Netscape Communications Corp.'s Navigator. Unlike stand-alone Web products, Notes Web Navigators store information in Notes databases, with configurable storage limits. Users can set a "page watch" feature to have Notes periodically check pages and alert them when there is new content. A "Web ahead" feature lets Notes preload pages and store them in a place specified by the browser. These features allow the user to have access to important Web pages even when an Internet connection isn't available.

Lotus has integrated calendaring and scheduling into the Notes mail system and its first pass at the effort is a good one

Notes' Web Navigator is a basic Web browser but with a few peculiarities. It lacks some familiar features: It doesn't change the color of links you have already visited, for example. And we couldn't even find one fairly rudimentary control, a Stop button to halt a download.

WEB SERVER

The Domino portion of the product lets an organization present Notes-based information to users on the Web. When Domino is running, Notes enables a Web browser to access Hypertext Markup Language (HTML) documents on the Notes server. This tool can be configured to point to normal HTML documents for a standard, static Web page.

By default though, Notes points to a "document" that generates Web pages on the fly from the Notes databases. The result is a Web site that gives a direct view into Notes. Without special configuration, most of the Notes databases become visible across the Web to one degree or another, including the address books, server configuration information and more. The information is read-only but may include more than a wary system administrator wants to show the world at large.

Fortunately, Access Control Lists, already familiar to Notes administrators, let the webmaster control the view. It is even possible to set a maximum level of access across the Web, which takes precedence over the settings for any individual user.

DOMINO.ACTION

One of the most interesting pieces in the box is an application called Domino.Action. This utility lets you build a standardized Web site in a very short time through fill-in-the-blanks forms. For those who don't understand Web page construction and Notes navigation, even this tool won't be enough. But with a little Web knowledge and some Notes experience, it will let a busy webmaster rapidly bring up a set of Web pages with good basic features and a consistent look and feel.

There may be two small flaws in the functionality provided with the Domino.Action generator. Storing Web pages as Notes databases makes some sense if your organization is committed to Notes. But intimately tying the HTML content to one type of server software makes it difficult to relocate the Web pages at a later time. Second, as Domino spreads, the highly stylized pages may come to be too recognizable, marking a Domino Web site as a cookie-cutter implementation.

A WELL-WRAPPED PACKAGE

The new mail, scheduling and Web features of Domino, Powered by Lotus Notes 4.5 go a long way toward answering the biggest open question about Notes, which is, "What do I do with this?" To date, Notes deployment has been application-driven, and Notes hasn't been a basic infrastructure tool. This latest set of in-the-box applications could change that trend. It may now be time to label the package "batteries included."

Hayes is systems control manager at Client/Server Labs, Inc. in Atlanta, a primary test lab partner of Computerworld.

CLOSELY KNIT

Novell Workstation Manager is integrated with Windows NT and provides

- Support for Windows NT Workstation user profiles and system policies
- Functions to configure and control Windows NT desktops via Novell Directory Services
- Simplified remote management
- The ability to create a Windows NT Workstation account accessible from any PC on the network
- A single log-on to network resources

Price: Free with IntranetWare
Availability: Next month

Novell

CONTINUED FROM PAGE 53

once. "This saves us 20 minutes of manual setup time per machine. That results in a savings of 24 hours or three days' worth of network management time. I'm all for anything that reduces my workload," Mobley said.

GOOD RIDDANCE

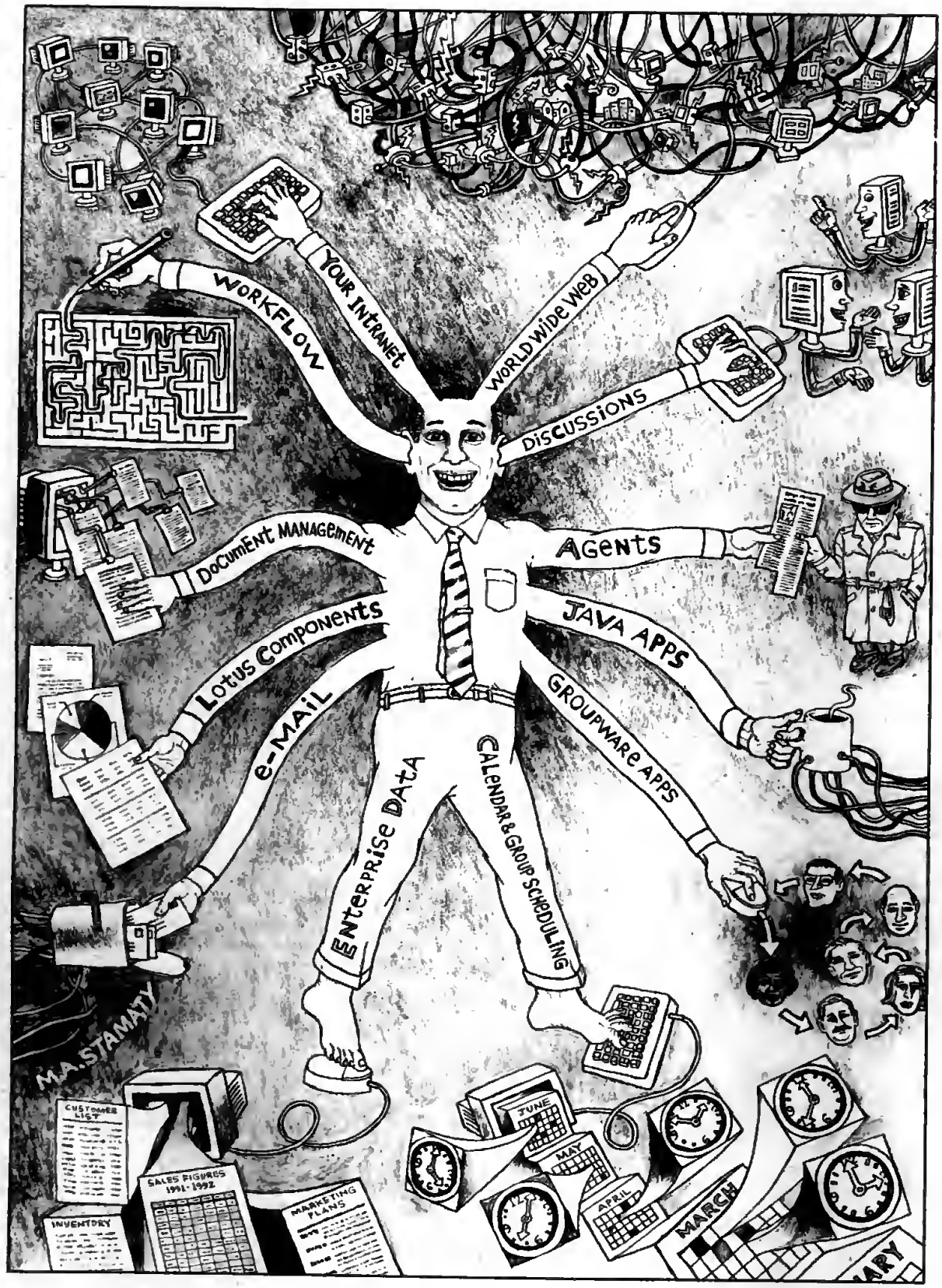
"Managing Windows NT Domains was a real pain and one chore I won't be sorry to see disappear," said John Franklin, systems engineer at CNA Insurance Companies, Inc. in Chicago.

CNA has 30,000 NetWare servers at 200 sites worldwide and has just begun to roll out significant numbers of Windows NT Workstations.

The utility, due later this month, is viewed by users and analysts as a smart defensive move by Novell.

It is a key component in the Orem, Utah, company's ongoing strategy to provide better links to the Windows NT Workstation environment while offering NetWare users an alternative to using Windows NT Server.

MacDonald called Novell Workstation Manager "a must-do" product for Novell because Windows NT Workstation penetration into NetWare shops is rapidly increasing. "It's a winner in terms of performance and integration with Windows NT Workstation," he said.


WORKFLOW
YOUR INTRANET
WORLD WIDE WEB
DISCUSSIONS
DOCUMENT MANAGEMENT
AGENTS
LOTUS COMPONENTS
JAVA APPS
e-MAIL
GROUPWARE APPS
ENTERPRISE DATA
CALENDAR & GROUP SCHEDULING
M.A.STAMATY
CUSTOMER LIST
SALES FIGURES 1991-1992
INVENTORY
MARKETING PLANS
JUNE
MAY
APRIL
MARCH

NOTES 4.5 WILL MAKE YOU THE CENTRAL ACCESS POINT TO A WORLD OF INFORMATION. OH SURE, PEOPLE WILL STARE, BUT YOU'LL GET USED TO IT.

Introducing the new [illegible] anything you can do. Note [illegible] it's monitoring mission critical [illegible] all those websites you've got to keep [illegible] your e-mail, scheduling and coordinating your [illegible] and appointments, or working from the [illegible] Internet as your line of communication. Note 4.5 [illegible] working with the Web [illegible] way, a way you use the Web to work in ways never before [illegible] You can even work on and update [illegible] company website right from your desktop [illegible] connected to the network or not. Is this a [illegible] what [illegible] Lotus

It's all about working more efficiently with [illegible]

dump
new life
company

The Internet

World Wide Web · Online Services

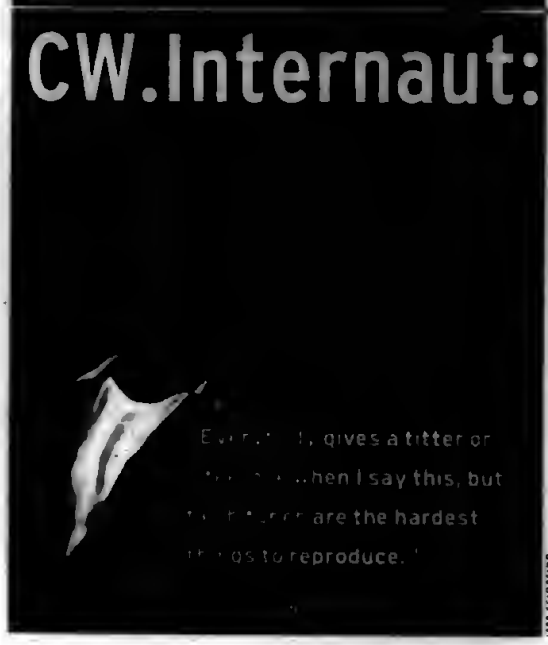
Briefs

Source: Graphics, Visualization & Usability Center, College of Computing, Georgia Institute of Technology, Atlanta

CW.Internaut: Eileen Kent

▸ Playboy *webmaster bets on simplicity*

By Mitch Wagner



JEFF ECKSTEIN

IF YOU RUN A magazine famous for its pictures of naked women, how do you make money on the Internet, where every exhibitionist with access to a camera, a scanner and an Internet connection is slavering to give your product away?

That's the problem Eileen Kent has faced every day of the two years that *Playboy* has had a World Wide Web site. The solution was to do her best to translate the magazine's quality to the Web, said Kent, vice president of new media at Playboy Enterprises, Inc.

Internet porn sites are often difficult to access, with highly explicit, poor-quality photos. Kent's mission was to bring the magazine's articles and photography — as well as its comparatively wholesome approach — to *Playboy* online.

To do that, Kent had to find a way to match the production values of the print magazine to the cruder online medium.

www.playboy.com

"Everybody gives a titter or a tee-hee when I say this, but flesh tones are the hardest things to reproduce, either on paper or in the digital world," Kent said.

Reproducing a print product online flies in the face of conventional Web wisdom, which says sites that don't provide In-

Playboy, page 62

WEB BROWSERS

Corporate surfers gain functionality with add-ons

By Barb Cole

ALTHOUGH WEB browsers provide universal access to corporate applications, some companies aren't ready to sacrifice functionality in the client for the sake of simplicity.

Bechtel Corp., for example, plans to layer a new piece of software on top of browsers to make them more functional when used with Documentum, Inc.'s Enterprise Document Management System. Bechtel also uses Accelera, a Documentum add-on, to permit World Wide Web browser access to the document repository.

GLOBAL ACCESS

With offices in remote corners of the globe, where network connections are inconsistent or even unavailable, Bechtel is a big proponent of giving users Web access to corporate documents.

Corporate surfers, page 62

Homegrown intranet app for sale

▸ *Utility avoids Notes expense and aims to regain cost of development*

By Justin Hibbard

WHEN IT COMES to intranet groupware, many experts say buy, don't build. Pacific Enterprises said build, then sell.

The Los Angeles-based utilities holding company last week rolled out its first homegrown intranet application, a threaded discussion database called PE Xchng. The application cost about $60,000 to build, an investment the company plans to regain — perhaps many times over — by selling the software to other businesses.

PE Xchng will be available to about 5,000 users at Pacific Enterprises' principal subsidiary, Southern California Gas Co. Chuck Rooney, director of business strategies at the gas unit, said he got the idea for the application after listening to a representative from the Office of the Chief Information Officer give a presentation on Internet business strategies.

As head of the gas company's competitive intelligence gathering group, Rooney collects tips about construction sites where developers are considering whether to use gas, oil or electricity. He gets information from personnel stationed throughout Southern California and redistributes it to the appropriate people.

"I'm trying to tap in to a human intelligence network," Rooney said.

Before using PE Xchng, he relied on voice mail and electronic mail for communications. But he wanted a more efficient system.

"Nothing really existed other than Lotus Notes, and it was too expensive to roll out companywide."

– Heather Copeland, Pacific Enterprises

"Whenever I wanted to do something like this, I had people trying to sell me Lotus Notes, and I didn't want to do that because it's too complicated," Rooney said.

Heather Copeland, Internet development coordinator at Pacific Enterprises, said she and her co-workers considered shrink-wrapped products before deciding to build the application themselves. But when they evaluated vendors' offerings last spring, few products met their needs.

Homegrown, page 62

JOHN JONES

The Internet

The World Wide Web • Intranets • Online Services

Briefs

Notes management

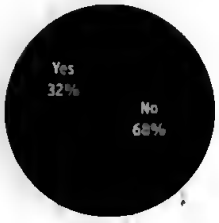
Candle Corp. this week will announce management tools for Lotus Development Corp. Domino servers. The Santa Monica, Calif., company is readying IntelliWatch Analyzer, a monitoring and planning tool for Domino servers that can be used to track the frequency of visits to a World Wide Web site and scan systems statistics for usage trends. Separately, the firm has revamped its IntelliWatch Monitor for Lotus Notes to support Domino 4.5. IntelliWatch Analyzer is available now, and Monitor will ship this quarter. Pricing wasn't available for either product.

Vanity domains

Interport Communications Corp. now offers vanity domains for its individual dial-up users, allowing users to select a domain name and be known by that address — provided that address isn't already used by someone else on the Internet. Most Internet service providers provide that service only for high-priced business accounts; Interport, which serves the New York metropolitan area, will now offer the service for its basic $25-per-month consumer accounts. Interport itself will charge no extra fees for the vanity domains, but users will have to pony up $100 to Network Services, Inc., the company that keeps track of domain names.

Back Up, We Won't Pay

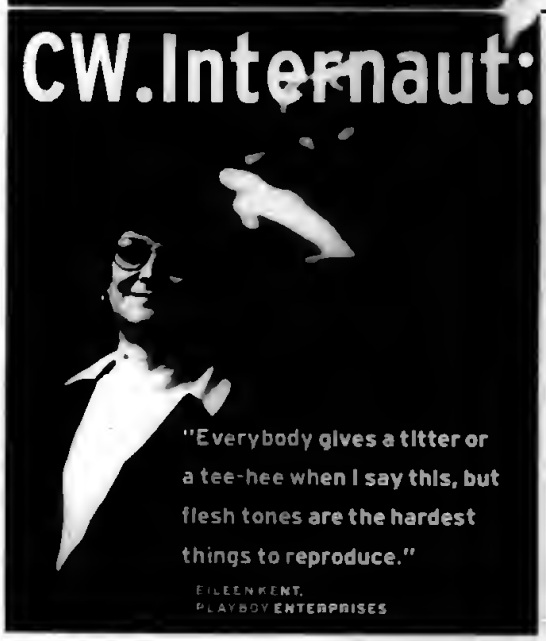
Are you willing to pay fees to access Web sites?



Base: 14,587 users who visited Georgia Institute of Technology's Web site

Source: Graphics, Visualization & Usability Center, College of Computing, Georgia Institute of Technology, Atlanta

CW.Internaut: Eileen Kent



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WWW www.playboy.com

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Homegrown, page 62

Homegrown apps

CONTINUED FROM PAGE 61

"Nothing really existed other than Lotus Notes, and it was too expensive to roll out companywide," Copeland said.

A less expensive alternative, she and her colleagues decided, was to develop an application that ran on Informix Software, Inc.'s Illustra database and Netscape Communications Corp.'s Enterprise Server.

The most expensive parts of the project were Informix's database and DataBlade modules, which together cost about $20,000, Copeland said. The programming required only a $12,000 contract worker and three staff members working part-time for three months.

Rooney funded the development of PE Xchng with $60,000 from his department's budget. Now he wants to see whether other companies will pay $15,000 for the application.

"I don't want to get into the software business," he said. "But if anyone's interested, I'd be willing to sell to them and recover the money for developing it."

Rooney said that although the application gives his company a competitive advantage, he has no qualms about selling it. He said the information a company shares through the application is more advantageous than the application itself.

Selling homemade applications is a viable way to get a return on investment from an intranet, according to Melanie Hills, author of *Intranet Business Strategies* and president of Knowledgies, a consultancy in Plano, Texas.

"You can use your intranet expertise to sell your products," she said.

Corporate surfers gain functionality

CONTINUED FROM PAGE 61

"Internet access is pretty much universal, though not necessarily at high speeds," said Darrell Delahoussaye, project manager of the InfoWorks document application at Bechtel's office in Houston.

AVAILABILITY VS. POWER

Lessons learned when tying document management to the Web

1. Browsers provide universal access to the system but limit users' ability to manipulate documents
2. Document management software keeps the contents of Web servers up to date
3. Complex documents can be too large for Internet bandwidth
4. Security must be above and beyond what's built in to most document management systems

BROWSERS' LIMITS

Browsers have succeeded in providing universal access to the international engineering firm's documents, but they limit users to basic capabilities such as searching, printing and marking up documents, Delahoussaye said. Browser users can't check documents in and out of the system, create folders or manage complex documents.

The new software, called SmartSpace, runs on top of browsers and will let Bechtel users receive customized and more up-to-date documents.

Although the Web browser add-on increases functionality for end users, it raises questions about security and bandwidth.

About 1,200 Bechtel workers worldwide access the InfoWorks application via the company's intranet. They use InfoWorks to work on projects that use text documents, spreadsheets and engineering drawings. They also use the application to track the documents required for International Standards Organization 9000 reporting purposes.

The evolution of Bechtel's InfoWorks application shows that document-management software — typically viewed as a way to keep track of complex, shared documents — may also be used to keep the contents of Web servers up to date. Document management systems inherently support document-version control, and the systems typically have some built-in workflow capabilities.

"We're seeing a movement away from simply looking at documents with browsers to managing the content of the Web servers" with the document management application, said John Serratelli, director of technical information at The Dow Chemical Co. in Midland, Texas, another Documentum shop that is moving in the same client direction as Bechtel.

So far, Dow has been able to work around the limitations of its browsers with custom programming, "but we'd prefer to buy that capability," Serratelli said.

ISSUES RAISED

The browser add-on will help put more functionality in the hands of users, but running a Web-accessible document system raises other issues, Delahoussaye said.

Because of security concerns, Bechtel won't post certain documents on the intranet — even though its InfoWorks application also incorporates encryption and firewall technology.

Bandwidth is also an issue. Further improvements in the area of incremental loading, which would let a user access Page 36 of a report without loading the whole document, are needed, Delahoussaye said. Improved on-the-fly compression and decompression at both the document- and Web-server level would also ease bandwidth requirements, he said.

MEDICAL ALERT...

Avoid Nervous Stress Disorder when Moving to Unix

Stop worrying about your programming productivity in Unix! Use the mainframe-style tools you've been using for years.

uni-XEDIT cms-style Editor with Full Macro Support

uni-REXX Portable System Control and Macro Language

uni-SPF ispf-style Editor, Browse, Utilities, ... even Dialog Mgmt!

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Playboy

CONTINUED FROM PAGE 61

Internet-specific features or content are doomed. *Playboy*, however, consistently ranks in the most popular 50 of the hundreds of thousands of sites on the Web.

One reason *Playboy* thrives despite the lack of 'net-specific content is because the company posts back isssues on the Web, which are difficult for readers to find elsewhere. Another reason, Kent said, is that the company spurns razzle-dazzle technology and graphics in favor of presenting a simple, easy-to-access and easy-to-navigate site.

"*Playboy* online lives up to the magazine's reputation. It's there, it works, it's well-organized, well-designed, and the quality of the images and the editing can't get much better," Kent said. "That's what keeps people coming back."

Kent tries to maintain that back-to-basics philosophy when it comes to revenue generation as well. She tries to be fast and responsive to advertising buyers' needs and produce well-designed ads that encourage "click-throughs."

So how does a 50-year-old woman get to be chief webmaster for one of the most popular sites on the Web, a new medium dominated by young turks?

Experience. Kent, a 20-year veteran of *Playboy*, became involved with computers soon after joining *Playboy*'s staff as an editorial assistant, basically, a secretary. She taught herself computer skills as a user as she moved into contracts administration and migrated into an information systems role in the 1980s when *Playboy* first got involved in early, proprietary online systems.

A well-organized and well-designed site "keeps people coming back." – Eileen Kent, Playboy Enterprises

As her interest and role in interactive media blossomed, she became responsible for all of *Playboy*'s online efforts and its line of CD-ROMs.

And her role continues to grow. *Playboy* plans to launch a for-pay site in March that will give visitors access to 40 years of back articles and photos, as well as current content.

The site will include a bulletin board area and live chat with Playmates, photographers, writers and, occasionally, founder Hugh Hefner.

Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

IT mergers up in '96

North American information technology firms bought other companies or merged 1,962 times last year — a 26% increase from 1995, according to a report from Broadview Associates, Inc. in Fort Lee, N.J. The value of these deals doubled from $82.8 billion in 1995 to $164.6 billion last year. Telecommunications deals accounted for 24% of the total.

Delta Power hires EDS

Electronic Data Systems Corp. in Plano, Texas, has landed a 10-year, [illegible] million information [illegible] operations deal with [illegible] PLC's industrial Power Group in the U.K. The contract holds [illegible] service buildings in the U.K. and Canada. About [illegible] Delta Power IT employees will be transferred [illegible] this year.

[illegible]

Price [illegible] Management Consulting practice plans to merge with LMS, a $16 million computer systems integration and consulting firm headquartered in Russia. Moscow-based LMS offers [illegible] technology, change management and related management consulting services in [illegible] in Russia and other former republics.

OPERATOR ASSISTANCE

People love to hate voice-response systems, and for good reasons. They include the following:

Too many menu options
The ideal menu should have three options. The average system offers seven options.

Long-winded greetings
The ideal greeting should last 20 seconds. The average one goes on for 36 seconds.

No way out 14% of systems lack any way to reach a human being.

Based 400 systems across eight industries [illegible] Group Inc., [illegible]

Walgreen seeks network Rx

▸ *Network crashes and server overload delay full rollout of prescription system*

By Thomas Hoffman

Symptoms: Strategic in-store retail prescription network crashes frequently during peak processing periods. Bottlenecks clog application and database servers as more pharmacies are brought online.

Prognosis: Uncertain.

THESE PROCESSING ILLS were enough to force Walgreen Co. recently to suspend the rollout of a high-profile dial-in prescription network to the more than 1,400 pharmacies still to be connected.

Walgreen has connected 800 of its 2,238 pharmacies to Intercom Plus since its rollout began in late 1995. Intercom Plus is still running and continues to serve those 800 pharmacies.

The project's delay was important enough for Walgreen President L. Daniel Jorndt to share details about its status at the company's annual shareholders meeting earlier this month.

Walgreen has spent $100 million in the past four years developing the proprietary Intercom Plus software with Andersen Consulting. The system was designed to help Walgreen pharmacies better manage their workflow and increase productivity and volume. It allows patients to enter prescription refill information from Touch-Tone telephones and helps pharmacists determine the best time to fill prescriptions.

Walgreen last year filled nearly 190 million prescriptions overall. A company spokesman was unsure how many prescriptions were filled online.

The system's rollout was expected to have been completed by the end of the first quarter, but Walgreen has backed off

Walgreen, page 64

Walgreen's Intercom Plus prescription management software is up and running at 800 of the company's 2,238 pharmacies

Independent contractors an endangered species

▸ *IRS regulations track employment status*

By Julia King

THANKS TO LAWSUITS, rigorously enforced federal tax rules and a general wariness among IS personnel managers, independent computer contractors are a dying breed.

In their place, companies are hiring hardware and software consultants employed by middleman firms such as Triad Technology Group, Inc. in Portland, Ore. They are paying these consultants as much as a 20% premium.

"Companies would rather pay companies like us a premium to take the liability away," said Bruno Amicci, president of Triad.

That includes ensuring that temporary workers are properly classified under federal employment laws and paying the appropriate taxes (see chart, page 64). This trend, according to Amicci and others, has heated up significantly since a U.S. Circuit Court of Appeals ruled last October that former freelance workers at Microsoft Corp. were eligible for employee stock and pension benefits, even though they had agreed in writing that they wouldn't receive the benefits [CW, Oct. 14, 1996].

The court ruled that the freelancers — who weren't hired through an agency — were essentially Microsoft employees because they performed the same duties under the same circumstances as regular, full-time employees.

PAYING PREMIUM

Some Fortune 500 companies have a corporate policy against employing independent information systems contractors.

"All our contractors come through agencies," at an additional cost of between 10% and 20%, said one company's director of human resources for global IS, who requested anonymity. Even those workers are rotated off projects or offered employment after 18 months, lest they begin to resemble too closely the company's permanent employees, the human resources director said.

Contractors, who constitute between 15% and 20% of his company's 550-person IS group in the U.S., don't receive any training and are excluded from employee events, such as holi-

Independents, page 64

TRAINING

Class gives tips in data warehousing

By Julia King

MIGRATION SOFTWARE Systems Ltd. and Global Knowledge Network, Inc. are teaming up to fill a big gap in the data warehousing field: training.

The companies this spring will begin to offer a five-day course in which students use multiple vendors' extraction, modeling and query tools to build a data warehouse.

> The training approach is vendor-neutral

The cost of the vendor-neutral training will range from $2,200 to $2,500. Classes will be taught at user sites and Global Knowledge Network's 72 training facilities worldwide.

"This is a good thing," said John Ladley, an analyst at Meta Group, Inc. in Stamford, Conn. "Until now, the training on data warehouses has been almost entirely from consultancies in business as consultancies or in business with the vendors."

Warehouse, page 64

Independents become endangered

CONTINUED FROM PAGE 63

day parties. "You have to avoid treating a contractor exactly the same as you would an employee," the human resources director said. "If they attend all of the same functions as an employee, you're then hard-pressed to prove that they're not one and the same."

At Georgia-Pacific Corp. in Atlanta, contract IS staffers hired through agencies can remain on an assignment for a maximum of six months.

After that, additional approvals from either an IS director or the company's chief information officer are required, said Rick Partridge, group human resources manager.

Georgia-Pacific also requires contractors hired through agencies to sign a formal document that states they will transfer specific knowledge to Georgia-Pacific staffers during the course of an assignment.

An SAP software contractor, for example, would be required to train a Georgia-Pacific employee on the specifics of the sales and distribution or financial module of SAP AG's R/3 system.

Contractors employed by agencies usually get health benefits, life insurance and paid vacations.

"We spell things out very clearly. The contractor understands that part of his job is to impart knowledge to the IS employee," Partridge said.

On the contractor's side, working as the employee of an agency usually means health benefits, life insurance and paid vacations.

As employers, agencies such as Triad also pay half of employees' 15% Social Security taxes. But it can also mean working more hours at a lower hourly rate than that of a fully independent contractor.

"I get a lot of independent contractors who tell me they bill $70 an hour, but they only worked 900 hours in a year," Amicci said.

"What a company like mine does is take that person, pay them $40 an hour and benefits. They may be getting $5 or $7 less an hour [including benefits], but they're putting in 1,600 to 1,700 hours a year," he said.

How the IRS decides

The IRS generally considers workers as employees if they do the following:

- Comply with an employer's instructions about work
- Receive training from the employer
- Provide services that are integrated into the business
- Provide services that must be rendered personally
- Hire, supervise and pay assistants for the employer
- Have a continuing working relationship with the employer
- Follow set hours of work
- Work full-time for an employer
- Work on an employer's premises
- Work in a sequence set by the employer
- Submit regular reports to the employer
- Receive payments of regular amounts at set intervals
- Receive payments for business or travel expenses
- Rely on the employer to furnish tools and materials
- Haven't made a major investment in facilities used to perform their services
- Can't make a profit or suffer a loss from their services
- Work for one employer at a time
- Don't offer their services to the general public
- Can be fired by the employer
- May quit work at any time without incurring liability

Source: Internal Revenue Service

Client/server system improves customer service

▸ *Australian utility eases complaint tracking*

By Sari Kalin

TELSTRA CORP. LTD. needed a wake-up call.

In the early 1990s, the Australian telecommunications giant faced deregulation, meaning its first-ever competition for customers.

Small businesses — so-called "casualties of telecommunications" — blamed shoddy telephone service for poor financial results and were sounding their stories in the press and parliament. Meanwhile, Optus Communications Pty. Ltd., Telstra's government-picked competitor, was using customer service as a selling point in entering the mobile and long-distance markets.

A 1994 inquiry by Austel, Australia's telecommunications regulator, showed Telstra needed to set up a national system to manage complaints.

Telstra's Complaints Into Compliments Enterprise Rollout (CICERO) project, a client/server complaint management system that was started three years ago, has aimed to do just that. So far, Telstra has delivered CICERO to 10,500 users on more than 250 LANs. Telstra workers have recorded 185,000 customers, 210,000 complaints and 520,000 actions into the system. When the rollout is completed later this year, Telstra expects to have 15,000 CICERO users running over 350 LANs.

Telstra chose Vantive Corp.'s Vantive Support, a three-tier client/server customer service and support automation package. It tapped Oracle Corp. for the database and reporting tool.

Since it launched CICERO, Telstra has found complaints take up to 20% less time to resolve, largely because they can be handled more smoothly, said Laurie Cunningham, project manager.

Julie Ehrlich, an analyst at Meta Group Australia in Sydney, said Telstra's complaint-handling improvements don't rest on CICERO alone. "The critical thing is that the manager has a direct interest [in resolving complaints] and is prepared to follow up, and everything else will follow from that," she said.

Kalin writes for the IDG News Service in Boston.

Data warehouse training

CONTINUED FROM PAGE 63

By contrast, "the training we offer is built to support multiple platforms and multiple [vendor] partnerships," said Duncan Anderson, vice president of worldwide marketing at Global Knowledge Network in Waltham, Mass.

"We have no conflict of interest," he said.

Tools that students will use in the course include Oracle Corp.'s Oracle7 database management system; middleware technology from Prism Solutions, Inc. in Sunnyvale, Calif.; query tools from Business Objects, Inc. in San Jose, Calif., and MicroStrategy, Inc. in Vienna, Va.; and Micro Focus Cobol from Micro Focus, Inc. in Palo Alto, Calif.

"But you can also plug and play. If a user wants to use Red Brick or Informix as a database, they can substitute," said Rich Whitman, vice president of commercial services at Migration Software, a database engineering and conversion services firm in San Jose, Calif.

Besides the five-day, hands-on course, a three-day lecture course, called Data Warehousing Fundamentals, will be available beginning next month. The course costs $1,500 per student.

Walgreen network snafus

CONTINUED FROM PAGE 63

that deadline until it has identified all the causes of its capacity constraints and systems crashes. The Walgreen spokesman said he wasn't sure if the server problems were occurring at the firm's Chicago-area data center, in some of its stores or both.

"It's a matter of handling the volume of data going through the system — that's the biggest challenge," said Michael Polzin, a Walgreen spokesman. Polzin said Walgreen expects to complete the rollout by year's end.

Walgreen executives declined to comment on Intercom Plus or reveal which hardware and software platforms it runs on.

The systems snafus come at a critical time for the Deerfield, Ill.-based retailer; two recent megamergers have transformed the competitive landscape.

CHAIN GANG

Rite Aid Corp. in Camp Hill, Pa., last month completed its merger with Thrifty PayLess Holdings, Inc. to form a 3,500-store chain. Within a few weeks, JC Penney Co. is expected to complete its $3.3 billion acquisition of Clearwater, Fla.-based Eckerd Corp. and begin melding Eckerd and its Thrift Drug chain into a 2,800-store combination.

Following the spate of megamergers, "it's hard to say who will be the largest [drugstore chain]," said David Magee, a retail trade analyst at The Robinson Humphrey Co., an Atlanta-based investment bank.

Magee called Walgreen an industry leader in its use of information technology and praised the retailer for its foresight in suspending the rollout of its dial-in network. "They're going to get from Point A to Point B, and they don't want any major hiccups to occur," he said.

Bill Walchesky, manager of telecommunications at Pittsburgh-based Thrift Drug, said his company hasn't had any capacity issues with its proprietary IBM CICS prescription network, which exchanges prescription information with its NCR Corp. 3404 in-store processors.

But that may change next month when Thrift begins to create a hybrid network with Eckerd's stand-alone prescription system.

Rite Aid runs its prescription information over the Open Pharmacy Network, a public network Salt Lake City, a company spokeswoman said.

Bob Beckley, senior vice president of PDX, Inc., a software vendor in Fort Worth, Texas, said PDX clients such as Wal-Mart Stores, Inc. and Kmart Corp. have avoided capacity constraints with their respective Unix-based PDX pharmacy systems by "pushing as much processing down to the store level as possible."

What's hot?
It may be cold outside, but read our Hot Happenings, our picks for the must-attend IS events for March and April. Page 72

Managing

FAMILY affairs

By S[illegible] Alexander

Some information systems employees may feel that family responsibilities, like work, never end.

But what can IS managers do to ease that work/family crunch that's so prevalent in the '90s?

IS departments are beginning to deal with requests to work at home, have flexible hours, provide on-site child care and allow job sharing. But honoring these requests may depend on the job involved. People who work on the help desk or in the computer room in jobs that support manufacturing and other operations are less likely than development or management personnel to qualify for flexible arrangements.

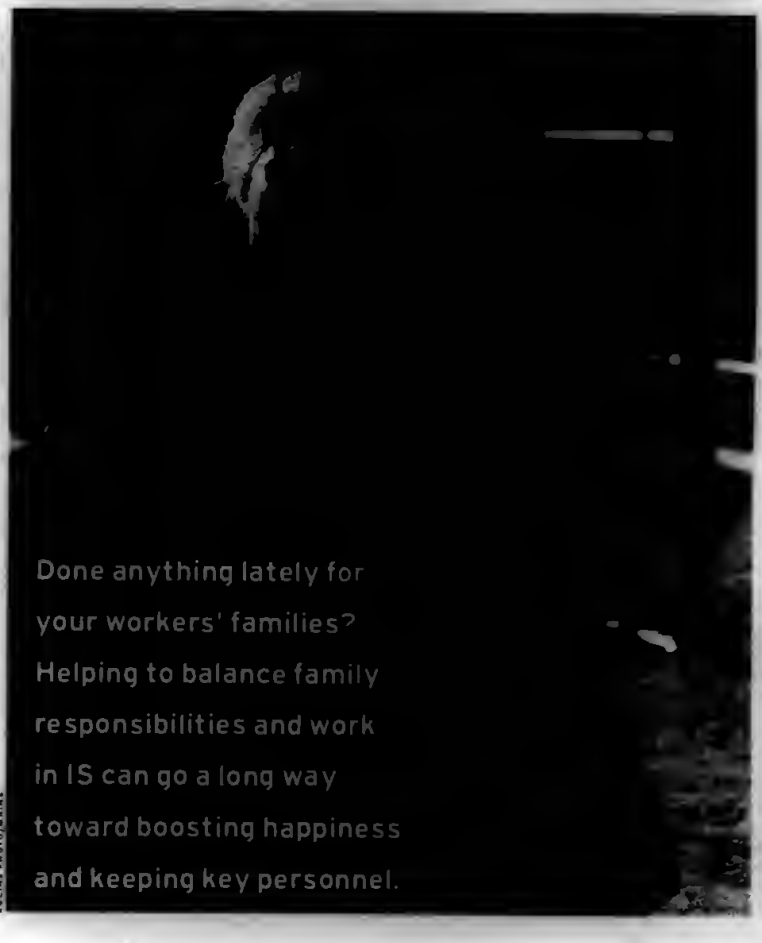
The work/family balance has drawn considerable attention. A national poll of 1,003 parents released last June by Yankelovich Partners, Inc. found that 62% of respondents said their families had been adversely affected by work-related problems such as added stress and longer hours.

Although companies' policies may cover all departments, there are some ways to help IS people balance work and family life. They center around acknowledging the need for emergency child care and, depending on the job, flex time and telecommuting. These can allow workers to spend more time at home.

TELECOMMUTING

At the Bank of Montreal, telecommuting appears to have helped IS employees cope with the added pressures of work, and the company has been satisfied with participants' performance. Telecommuting isn't

Family affairs, page 69



Done anything lately for your workers' families? Helping to balance family responsibilities and work in IS can go a long way toward boosting happiness and keeping key personnel.

EUGENE PHOTO/MAINE

Abbie Brown, CIO at Unum Life Insurance, makes work teams in her 311-employee department create their own schedules so that the work gets done and members can tend to their families

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80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85 Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90 Computer/Peripheral Dealer/Dist./ Reseller
95. Other ____ (Please Specify)

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19 Chief Information Officer/Vice President/Asst. VP IS/MIS/DP Management
21 Dir./Mgr MIS Services, Information Center
22. Dir./Mgr Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr. Tech Planning, Administrative Services
23. Dir./Mgr Sys. Development, System Architecture
31 Programming Management, Software Developers
41 Engineering, Scientific, R&D, Tech. Management
60 Sys. Integrators/VARs/Consulting Management
CORPORATE MANAGEMENT
11 President, Owner/Partner, General Mgr
12. Vice President, Asst. Vice President
13. Treasurer, Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
51 Sales & Mktg. Management
70 Medical, Legal, Accounting Mgt.
OTHER PROFESSIONAL MANAGEMENT
80 Information Centers/Libraries, Educators, Journalists, Students
90 Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply.)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No
Internet Products ☐ Yes ☐ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
(a) ☐ Internet software
(b) ☐ Internet browsers
(c) ☐ Web authoring/development tools

5. Do you use the Internet? ☐ Yes ☐ No

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40 Wholesale/Retail/Trade
50. Business Service (except DP)
60 Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
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2. TITLE/FUNCTION (Circle one)
IS/MIS/DP MANAGEMENT
19. Chief Information Officer/Vice President/Asst. VP IS/MIS/DP Management
21. Dir./Mgr MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, System Architecture
31. Programming Management, Software Developers
41 Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Management
CORPORATE MANAGEMENT
11 President, Owner/Partner, General Mgr.
12. Vice President, Asst. Vice President
13. Treasurer, Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
51 Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)
Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No
Internet Products ☐ Yes ☐ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
(a) ☐ Internet software
(b) ☐ Internet browsers
(c) ☐ Web authoring/development tools

5. Do you use the Internet? ☐ Yes ☐ No

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FAMILY affairs

CONTINUED FROM PAGE 65

a panacea, but IS created a plan under which 100 employees started telecommuting over the past six years. The plan, which equipped workers with portable computers, cellular phones and pagers, has since been extended to about 600 employees in other departments.

"If you were a programmer, you didn't have to come to the office on a regular basis, just for meetings and things of that nature," says Don Chamberlain, senior manager of solutions and applications at the bank. He manages the 100 IS telecommuters in Chicago and Toronto. "What that allowed people to do was structure their own time. Some spent a couple of days a week at home, and some you didn't see for a month," he says.

The help desk was the only IS job at the bank that couldn't be done through full-time telecommuting because its people need to be on-site, he says.

The bank's employees saw the telecommuting arrangement as freedom, and the work/family balance apparently improved. Chamberlain says employee opinion surveys showed that worker satisfaction, measured on a scale of 0 to 100, rose from 65 to 92.

The bank benefited because internal customers perceived IS people were easier to reach through pagers and cellular phones, the quality and quantity of IS employees' work improved, and staffers seemed more organized. At the same time, it became easier to manage staffers because "IS people took more ownership of what they were doing as opposed to asking a manager to bless everything," Chamberlain says.

But Chamberlain learned the following things from telecommuting:

- Telecommuting may not work well during IS project phases when many meetings are necessary. "Meetings are much more effective face-to-face rather than over the phone," he says.
- Training is only somewhat adaptable to telecommuting. About 30% of training could be delivered to telecommuters over their laptops; the rest had to be done in the office.
- You may have to change your management style. "What I don't look for anymore is style or punctuality. I measure the things that really hit the bottom line of the company — the amount of work done and the customer satisfaction," Chamberlain says.
- The independence of telecommuting can aggravate some personal problems. "The only person who failed [at telecommuting] had an alcohol problem, which, being out of the line of view, got worse," he says.

IS needs to help its employees deal with work/family balance issues because many are drowning in work.

CHILD CARE, PARENTAL SANITY

Unum Life Insurance Company of America in Portland, Maine, allows emergency drop-ins at its on-site day care facility for all its employees, Chief Information Officer Abbie Brown says.

Brown's 311-employee department also uses a wide range of flexible work arrangements such as job sharing and telecommuting. To keep workflow on track, Brown makes IS work teams come up with proposals for their members.

For example, a senior programmer/analyst worked out a flexible, yet very specific, arrangement with the head of her team. Although it involved only working a four-day week every other week, a written agreement spelled out what time she would arrive at work each morning, how she would update her phone mail daily to advise callers of her availability, how the flexible schedule would work during holiday weeks and how the plan would change if she were out sick. A statement in the agreement said management could cancel the arrangement at any time if there were any performance or scheduling problems.

So far, Brown hasn't had to turn down any requests because the teams always make them work.

In Indianapolis, pharmaceutical giant Eli Lilly and Co. offers employees on-site day care for children ages 6 weeks through 6 years. And it can care for up to 30 children who are ill (but not bedridden) and can't go to school or whose regular child care was disrupted. It also offers a 40-hour-per-week summer science camp for employees' children up to the eighth grade for about $125 per week.

And Eli Lilly offers IS employees part-time schedules and flex time, although employees must be in the office during "core" hours between 9 a.m. and 3 p.m.

But Lora Ramey, information technology manager for manufacturing logistics and planning at the Lilly Technology Center in Indianapolis, says working fewer hours may slow one's career growth. "If you're working part-time, you can't pack as many experiences into three days as you can into five," she says.

Yet other flexible arrangements, such as a parent wanting to avoid travel, won't hurt a person professionally, Ramey says. "When my kids were younger, I said I couldn't go on a major trip and be gone for a week more than once a quarter. And it did not affect my career," she says.

IF YOU CAN'T TAKE IT HOME...

If telecommuting isn't the answer, job sharing may be just the thing for people in high-demand, high-stress IS jobs who aren't allowed to work at home. Take the Du Pont Co. in Wilmington, Del. Du Pont couldn't offer work-at-home jobs to people in desktop PC support and installation, so it let them share jobs.

"It works extraordinarily well," says Linda McGrath, manager of a 150-employee IS group that supports staff functions at Du Pont. "Not only do the people figure out how to provide coverage, but Du Pont winds up winning because we get more output from two people than we would from just one.

"What we see happening is people don't just work the number of hours they are paid for; they work additional hours to get the job done. They want it to work because it's helping them personally."

McGrath's biggest concern is making sure there are no misunderstandings about flexible arrangements. They also include flex time, in which people work four 10-hour days, and "flex place," a limited form of telecommuting in which people may work at home several days a week but not exclusively from home.

DROWNING IN WORK?

Robert A. Zawacki, a Colorado Springs-based consultant on the human side of IS, says IS needs to help its employees deal with work/family balance issues because many are drowning in work.

"Most IS departments have been downsized by 30%. In many cases ... it's gone too far — a 10-employee department has been cut to seven, but they have all the work of the 10. Then you add in two-career families and children, and these people are drinking out of a fire hose," Zawacki says.

But having "family-friendly" policies can be a good recruiting tool.

At SAS Institute, Inc. a decision-support software firm in Cary, N.C., IS manager Suzanne Gordon offers flex time for family needs in her 50-person department and lets employees' children come to the office. "Realize that if you do things for employees, they are so appreciative and work so hard to prove it that it pays off immensely," she says.

Alexander is a freelance writer in Edina, Minn.

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This week on our Web site (www.computerworld.com), join in an online discussion on how IS managers can help make their departments more family-friendly.

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THE MUST-ATTEND IS EVENTS FOR MARCH AND APRIL

IF SOME EARLY-SPRING TRAVELING will help shake you out of a winter funk, and if you want to become more Web-wise, think warm thoughts.

Our Hot Happenings for March and April include a trio of Internet-focused shows, starting in mid-March with Mecklermedia Corp.'s fourth annual Spring Internet World '97 in Los Angeles.

Spring Internet World '97

Los Angeles Convention Center
Los Angeles, March 10-14

If you want practical tips for solving your Internet or intranet challenges, this could be a worthwhile trip. The show will have product demonstrations from about 600 vendors, plus more than 200 speakers. Keynote speakers include Gilbert F. Amelio, chairman and CEO of Apple Computer, Inc., and Digital Equipment Corp.'s president and CEO, Robert Palmer.

Don't be surprised if big vendors such as Microsoft Corp. and Netscape Communications Corp. unveil products.

Costs: $495 to $1,395. **Contact:** Mecklermedia, Westport, Conn. (800) 632-5537 or (203) 226-6967. **Fax:** (203) 226-6976. **E-mail:** siw97@mecklermedia.com. **Web address:** events.iworld.com.

Internet Commerce Expo (ICE)

Georgia World Congress Center
Atlanta, April 8-11

Learn about critical Internet issues that face information technology professionals and new business opportunities on the 'net at the first of two ICE events in the U.S. this year. It's sponsored by International Data Group (IDG), *Computerworld*'s parent company.

Day 1 in Atlanta features The Internet Market Outlook, a global update and research briefing on vendor and user realities of the Internet, intranet and World Wide Web, presented by International Data Corp., a *Computerworld* sister company.

Costs: $250 to $1,195. **Contact:** IDG, Framingham, Mass. (800) 667-4423. **Fax:** (508) 370-4325. **Web address:** www.idg.com/ice.

Internet Showcase 97

Sheraton San Diego Hotel and Marina
San Diego, April 27-30

This new show, which showcases new products and technologies, is produced by columnist and industry analyst David Coursey and presented by *Upside Magazine*. Coursey has been quite good at doing the demonstration show. He knows the mechanics and can entertain a large audience.

Expect to leave fully informed about what you see. Product demonstrators must be senior executives of the invited companies and have in-depth knowledge of their wares.

Costs: $1,395 to $1,695. **Contact:** Internet Showcase 97, *Upside Magazine*, 2015 Pioneer Court, San Mateo, Calif. 94403; or call Jill Pendergast, (415) 577-2533 (**E-mail:** jpendergast@upside.com). **Web address:** upside.master.com/conf/showcase.

ACM 97 (The Next 50 Years of Computing)

McEnery Convention Center
San Jose, Calif., March 1-5

The Association for Computing Machinery (ACM) celebrates its 50th birthday this year and looks to the next 50 with this conference. Take a trip into the future of IT with some of the industry's top names and visionaries. The expo portion will include a lineup of technology innovations that might be seen in 2047.

Some of the featured demonstrations include virtual tours of real cities and a chance to play chess with Deep Blue Jr., the computer that defeated world champion Garry Kasparov.

Costs: $100 to $750. **Contact:** ACM, New York, N.Y. (800) 342-6626 or (212) 626-0500. **Fax:** (212) 944-1318. **E-mail:** ACM97@acm.org. **Web address:** www.acm.org.

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Computerworld staff members Rick Saia, Kim S. Nash, Paul Gillin, Charles Babcock and Mitch Wagner contributed to this report.

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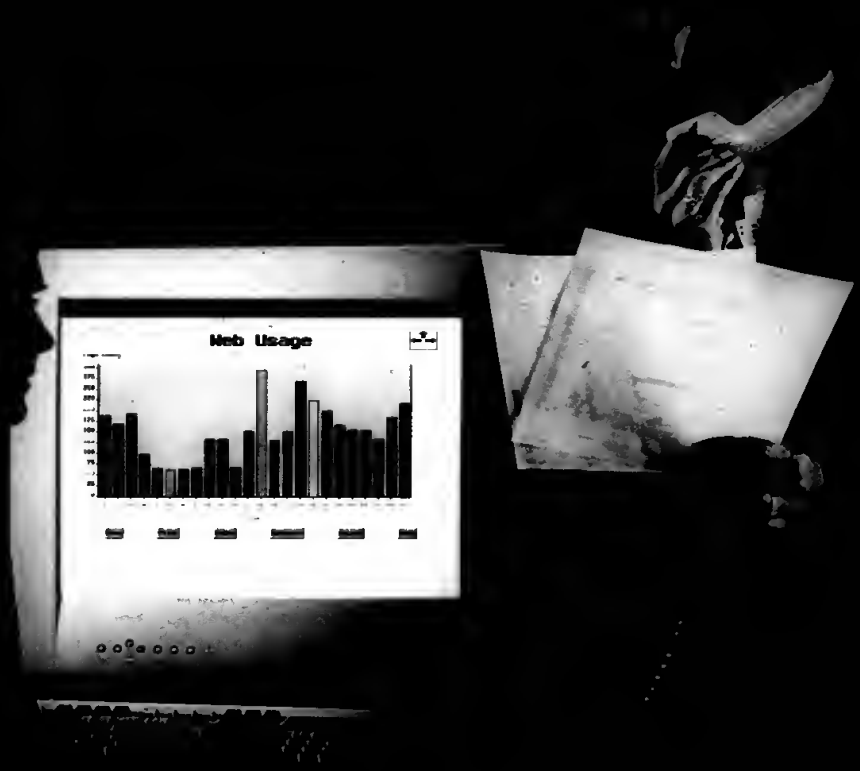

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JIM CHAMPY

IS AND LINE MANAGERS NEED TO CLOSE THE GAP

Every time somebody does one of those numbingly detailed surveys of IS managers, one issue always floats to the top: aligning information technology with company strategy.

It feels like a recurring indictment of information systems professionals and a glaring example of what the warden told Paul Newman in *Cool Hand Luke*: "What we got here is a failure to communicate."

The warden is a good analogy for certain business types who retain all the authority and are too arrogant to figure out what makes someone else tick. What's tragic is that nobody on either side of the IS/line management gap is stupid. Simply put, their values are different, which leads to mutual harsh judgments.

You know the dialogue:

Mr. Management: Just give me a system that tells me all I need to know about my customers when they call and that mere mortals can use, in plain English. And I want it next quarter.

Mr. Technology: What a minute. How many seats? How big will the database grow? Where does the data reside now? What communications protocols? We'll have to follow a proven methodology. And, I'll need to start with an in-depth assessment.

That kind of exchange leads to only one area of agreement: The other guy doesn't get it. Another certainty is that the IS guy is going to lose.

Until now, the standard advice to beleaguered chief information officers has been to try harder.

The real answer is for line management to communicate differently and for IS professionals to listen in ways that give meaning to strategy abstractions such as "We want to be No. 1 in our industry." Strategy isn't a collection of platitudes. It's about making a hard set of business choices to create a sustainable distinctiveness — a distinctiveness that's likely to result from technological innovations.

How can IS help sharpen strategy? Not in the usual way. The response from IS often is a highly formal "information technology planning" process. But most IT planning processes end up being a mere exercise. Many of these formal "plans" are just a negotiated allocation of resources and contain no vision of how technology should really work in the business. And like some business strategies, they sit on a shelf, collecting dust. In fact, just as Shakespeare would "kill all the lawyers," I think it's time to throw out all the IT planners, while acknowledging their good intentions.

The good news is that technology will eventually save us from this planning. It's moving so fast that plans become irrelevant. And in a world of business and technology change, managing IT and creating a business strategy are becoming part of the same process. It's a process in which a traditional technology plan is replaced by the design of a technology infrastructure and a set of principles.

What will remain inside is the architecture to allow mere mortals to find the information they need. We see this happening in the almost-organic growth of the World Wide Web and linked intranets. The controlling principle for IT will be how to organize information so it can be found and used easily.

JUMPING HURDLES

For an IS professional to create the appropriate infrastructure for a company, two barriers have to be overcome. The first involves cognition. IS professionals simply don't think like business managers. They live in a structured world where accuracy and predictability are valued. In today's business world, predictability is hard to find and perfectionist thinking is something most businesses can't afford.

This isn't a new problem. And up until now, many companies have addressed it by making a businessperson a CIO. I think that approach is a failure and a high-risk option unless the business manager is also technology-literate. Technology is changing too quickly and the choice of infrastructure is too critical to put in the hands of an IT amateur. I see no choice today but to immerse IS managers in business so that their understanding and way of thinking is affected.

The second barrier to overcome involves line managers ceding control and building trust in IS. Line managers are coming to the terrifying realization that the future of the business is in the hands of people they have a hard time understanding.

What's at stake is the development of a common understanding between what feels like the management "wardens" and IS "inmates" as technology moves to the center of business strategy. It's time to fix the "failure to communicate," and I don't mean the network is down.

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. His newspaper columns are syndicated by Tribune Media Services.

f.y.i.

Cries for 'help'

Listen up, help desk denizens. Your users have some constructive criticism for you.

The Life Office Management Association, an international association of 900 life/health insurance and financial services companies, recently surveyed 34 member companies for its 90-page booklet, "Help Desks: An Employee Guide."

On the users' wish list for a "perfect" help desk: more technical knowledge, (some call for one or two individuals with some technical training), more people, adequate staffing to handle busy call-in time periods and fully trained personnel who can answer most problems without having to call users back.

The help desk staffs also had their say. Their wishes: more training (some cite problems in keeping up with changing technology); better help desk technology, specifically automated call distribution and better ways to communicate system downtime; users who look at documentation before calling for help; and more appreciative customers.

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Buyer's Guide

CA, TIVOLI *lead* A RIVAL

AS INFORMATION SYSTEMS STAFFS try to manage increasingly distributed computing environments and wrestle with one management tool after another, integrated network and systems management frameworks look increasingly alluring. They are so attractive, more vendors are vying to integrate parts of the enterprise computing environment and grab a piece of the integrated systems management pie.

Network and systems management frameworks — the distinctions between the disciplines are becoming increasingly blurry — are comples pieces of software that provide a set of common services, such as event notification or configuration information. The software also provides a distributed manager/agent infrastructure to various management applications. These applications perform the actual management work, such as scheduling jobs, tracking problem resolution or distributing software.

There are many contenders in the integrated management tools arena, including Platinum Technology, Inc., Compuware Corp., Seagate Software, McAfee Associates, Inc., Boole & Babbage, Inc., BMC Software, Inc. and Hewlett-Packard Co. But the market is quickly coalescing around two rival camps. At the center of those camps are Computer Associates International, Inc., with its CA-Unicenter software, and IBM subsidiary Tivoli Systems, Inc., which provides the Tivoli Management Environment (TME 10). CA and Tivoli actually represent two systems/network management ecosystems, says Paul Mason, program director of systems infrastructure software at International Data Corp. in Framingham, Mass.

"In software, we are finding ecosystems similar to what you find in nature," Mason says. The leaders, Tivoli and CA, are surrounded by other players who depend on the ecosystem for a market.

Tivoli and CA provide integrated management frameworks that combine a wide range of management functions that cover the major management disciplines — problem, performance, operations, security, configuration, administration, backup and software distribution. Tivoli relies extensively on functionality provided by third parties, which it then integrates. CA builds most of the

BITMAN ARCHIVES

CAMPS

BY ALAN RADDING

various functionalities in to its product.

The other players — including large vendors such as HP and Intel Corp., and specialized, or point, product providers — fill niches within the software ecosystems or camps.

"Today, every vendor is scrambling to align with CA or Tivoli," says Waverly Deutsch, director of computing strategy at Forrester Research, Inc. in Cambridge, Mass.

But as the dinosaurs discovered, ecosystems evolve and change. "A few years ago, there also were management camps, but it was network management, and the leaders were Hewlett-Packard Co., IBM and Sun Microsystems, Inc.," Deutsch says.

Network management is now simply another component of the CA and Tivoli ecosystems.

Tivoli, for example, now has IBM's NetView to provide the network management functions. CA recently established an alliance with Cabletron Systems, Inc., drawing on Cabletron's Spectrum network manager for integrated network management.

HP's OpenView had seemed poised to become the dominant network/systems management ecosystem. Now it is just another player — albeit a large one — that straddles both camps through its alliances with Tivoli and CA.

"HP is finally getting around to integrating systems and network management, but it is not very well integrated. The systems management is just a separate bundle of functions," says Brandon Musler, an analyst at Illuminata, Inc. in Nashua, N.H.

The sudden rise of systems management frameworks leaves most IS managers stuck with a slew of point network and systems management products that are begging to be integrated.

Many organizations have cobbled together a workable, if not ideal, level of integration. They've used tools such as Boole & Babbage's Command Post, which consolidates multiple alerts on a single display.

Other organizations have used integrated management frameworks, but choosing one represents a major commitment.

Before plunging into an integrated management framework, managers need to reassure themselves they're making the right choice in several key areas, including breadth of functionality, ease of integration, openness, scalability and cost.

BREADTH OF FUNCTIONALITY

OpenView is primarily a network management tool, although HP is making a play for the larger market by remarketing Platinum systems management functionality alongside OpenView. "HP hasn't got Platinum very well integrated," Musler says. Other vendors offer suites of point products, but they appear incomplete and offer only minimal integration.

CA-Unicenter and TME 10 promise the most comprehensive sets of integrated functionality, but neither product does everything. CA-Unicenter, for example, delivers some core systems management functionality that TME 10 lacks, such as accounting and chargeback. TME 10 was the first product with application management, specifically management of SAP America, Inc.'s application suite.

"We found CA-Unicenter much more feature-rich," says Brian Fuesz, technical program manager at the National Center for Supercomputing Applications (NCSA) in Champaign, Ill. The NCSA recently adopted CA-Unicenter for managing its Unix and Windows NT interoperability lab. But Tivoli can lay claim to more third-party, best-of-breed products and is still integrating IBM's comprehensive NetView and SystemView offerings with TME 10.

More important than the current functionality offered by the management tools is the speed at which new and enhanced functionality can be added to the framework. Both vendors come up short, analysts say. The bottleneck for Tivoli is the painstaking integration of third-party products. The bottleneck for CA is the speed at which it can build or buy and integrate functionality.

EASE OF INTEGRATION

Integration is critical to users but difficult for vendors to achieve. In many cases, integration amounts to little more than an integrated launch and alert capability that lets you launch a tool from the main user interface screen and see alerts on a single screen. To use the particular functionality of the tool, you still have to learn its unique interface.

The Tivoli approach requires that third parties populate the Tivoli framework with specific management functionality. The integration mechanism is the Tivoli/Plus program, which promises tight integration of many of the leading point products.

Still, "the integration level of Tivoli/Plus products isn't as good as in products written for the platform," says Richard Weiss, a Tivoli user and an architect for enterprise management systems at Charles Schwab & Co. in San Francisco.

Rival Camps, page 84

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RIVALCAMPS

CONTINUED FROM PAGE 81

Most of CA-Unicenter's functionality is built directly in to the product by CA. As a result, the integration is seamless but the specific functionality may not equal that of the name-brand point products integrated into Tivoli.

OPENNESS

Tivoli leads in the area of openness, given its need to integrate third-party tools to fill in the functionality of the framework. The company is well on its way to solidifying an industry around its framework and application programming interfaces through its 10/Plus Association.

Until recently, CA-Unicenter was a closed environment. But last year the company announced support of the Desktop Management Interface (DMI), which allows it to share information with DMI-compliant tools.

It has also forged alliances with Microsoft Corp., Intel, Cabletron and others — moves that should open the environment even more.

SCALABILITY

Scalability refers to the ability of the framework to manage thousands of elements, such as desktop clients and servers, across many sites.

Key scalability factors — in theory at least — are the design of its agent and manager architecture, and the effectiveness of its correlation engine.

TME 10 and CA-Unicenter offer distributed intelligent agents and managers, which can handle much of the management work at or close to the managed node. That reduces the likelihood of swamping the network with management traffic. Buyers will want to see how closely the actual distribution architecture reflects their own distributed organization.

TME 10 and CA-Unicenter also offer correlation engines that sort through the flood of trouble messages that occur when one problem causes numerous many messages — for example, when hundreds of clients try in vain to access a dead server.

What matters is how the framework scales in practice. For that, you need reports from the field.

"Tivoli is not terribly chatty, so it doesn't take up bandwidth. But it does consume resources on the managed devices," Weiss says.

Tivoli promises to deliver a lighter-weight client agent. Weiss says he also expects Tivoli to integrate correlation with HP OpenView.

Still, there are too few large-scale systems deployed to accurately evaluate the scalability of either in practice.

COST

Enterprisewide integrated network and systems management doesn't come cheap. Recent Tivoli contract announcements put the price tag at about $5 million out of the box for very large-scale enterprises, such as Ameritech Corp. or BankAmerica Corp., which joined the CA camp. And the costs don't stop with the framework.

Any third-party functionality you intend to incorporate must be separately licensed and integrated. For example, Tivoli/Plus integration modules for third-party products cost $9,000 and simply provide one-time integration.

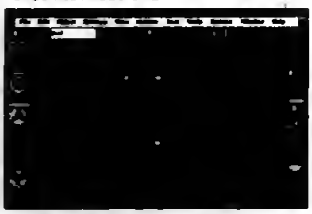
You still have to license and implement the actual third-party tool. Then there is the cost of implementation, which often entails considerable labor and consulting expenses.

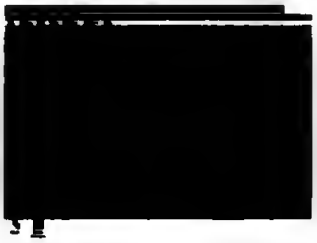
Take an especially close look at the license terms, an observer familiar with management system licensing practices warns.

In particular, nail down the cost of subsequent license renewals before you sign up; the cost may rise dramatically down the road. Once you have implemented an integrated systems management framework, you're in no position to walk away from the vendor. That leaves you no choice but to pay whatever is demanded.

Radding is a freelance writer in Newton, Mass.

NetView for NT





The consolidation of systems and network management tools should make it easier to go to one supplier for tools such as Tivoli's IP manager (left) and the CA job scheduler (right)

Managing the network: Still a long way to go

By Charles Babcock

[illegible] network manager, sitting at his central [illegible], would like to look past the end nodes of the network to see whether the doors to the building are locked at a branch office 500 miles away.

This is just one example of how much network managers are expected to do and [illegible] they can't necessarily do it. In many [illegible], network managers are forced to [illegible] in the dark, while they are also expected to peer into all corners of the network and know what's happening on all the devices attached.

Network management is making rapid strides in its ability to "see" the network compared with just a short time ago. But network managers say a great deal more needs to be done. In particular, they ask how can they manage some of the problems they encounter on the network unless their vendors add more intelligence to management tools and better meld network management with systems management — or with the actual management of end-user devices.

For example, when a firm's sales manager steps up to the camera to hold a teleconference with his staff, the company's LAN, already loaded with Internet users, can go into the tank. That happens because the network manager doesn't have a predictive tool that would have warned him the network was about to be overloaded.

Even if he had a predictive tool, the network manager still would have lacked the means to adjust the network bandwidth to accommodate the teleconference. Dynamically adjusting bandwidth is a goal that remains elusive and will probably require collaboration among the device manufacturers and network management software vendors.

A future management tool will learn from previous problems and issue warnings when it sees the same conditions develop. It also will let the network manager troubleshoot the problem remotely, then trigger a system with the stored intelligence to render a fix.

Analysts say the granddaddy challenge of them all is to merge network management with today's rough but improving systems management, which inventory desktops and upgrade their software. Completing such a merger is years away. But it would some the network and the devices being used as it could be brought into sync — and managed from a World Wide Web browser, of course.

"There needs to be an integrated security architecture, a global directory service, as well as a universal repository for servers and networks," says Don Daigle, manager of electronic commerce and desktops at Sandia National Labs in Albuquerque, N.M., naming what's on his list of what a merged system might offer.

"The whole system needs an object orientation. A lot of vendors haven't gotten there yet," says Tom Cornwall, manager of network and desktop services at managed health care provider Kaiser Permanente Health Plan, Inc. of Southern California in Pasadena. Objects can be made to cross platforms and scale to enterprise levels more easily than fixed server systems. Cornwall manages end-user desktops using Novadigm, Inc.'s Enterprise Desktop Manager, an early object-based system. The release later this quarter of CA-Unicenter: The Next Generation will be based on an object-oriented approach.

Even when systems management packages are truly cross-platform and scalable, future management systems will need more intelligence.

Simple Network Management Protocol (SNMP), which came on the scene in 1989, is a standard for gathering information from devices on the network, but it doesn't supply much information. A successor, SNMP II, appears to be bogged down in the standards process with little acceptance.

But the idea that machine intelligence will one day handle many of the problems on the network strikes some users as wishful thinking.

"That's a little far-fetched, considering how fast the treadmill turns," Cornwall says. As soon as a recurring problem can be analyzed and given an automatic fix, there will be changes in the network that obsolete the fix, he says. "You can't build the rules for the management system fast enough to keep up."

Babcock is Computerworld's technical editor.

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Lucent	Network Management	200	15
NationsBank	Direct Banking	80	4
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In Depth

The Association for Computing Machinery (ACM) was created in 1947, making it the elder statesman of information technology groups. To celebrate its 50th anniversary, ACM is looking not backward, but forward — to the next half-century.

One major marker in this celebration will be the March publication of *Beyond Calculation: The Next 50 Years of Computing*. Editors Peter Denning and Robert Metcalfe invited essays from nearly two dozen of the industry's pioneers and clear thinkers. The collection looks at scientific, social and economic effects of the continuing revolution in computing.

In anticipation of the book's publication, *Computerworld*'s next four In Depth sections will consist of exclusive excerpts from *Beyond Calculation*. This excerpt is by Donald A. Norman, a fellow at Apple Computer, Inc. Enjoy.

Symbiosis

Why it's GOOD that computers don't work like the brain

By Donald A. Norman

THE REASON I LIKE MY ELECTRONIC CALCULATOR is because it is accurate: it doesn't make errors. If it were like my brain, it wouldn't always get the right answer. The very difference is what makes the device so valuable: I think about the problems and the method of attack. It does the dull, dreary details of arithmetic — or in more advanced machines, of algebraic manipulations and integration. Together, we are a more powerful team than either of us alone.

Alas, most of today's machines, especially the computer, force people

Symbiosis, page 88

JOHN HERDING

Symbiosis

CONTINUED FROM PAGE 87

to use them on their terms, terms that are antithetical to the way people work and think. The result is frustration, an increase in the rate of error (usually blamed on the user — human error — instead of on faulty design) and a general turning away from technology.

Will the interactions between people and machines be done correctly in 50 years? Might schools of computer science start teaching the human-centered approach that is necessary to reverse the trend?

Are you an optimist or a pessimist?

HUMANS VS. COMPUTERS

The modern era of information technology has been with us but a short time. Computers are less than a century old. The technology has been constructed deliberately to produce mechanical systems that operate reliably, algorithmically and consistently. Their bases are mathematics, or more precisely arithmetic, in the case of the first computing devices, and logic in the case of the more modern devices. Even analog computers followed similar guidelines. The design was algorithmic and precise; repeatable, understandable operation was the goal.

Contrast this with the human brain. Human beings are the results of millions of years of evolution, where the guiding principle was survival of the species, not efficient, algorithmic computation. Robustness in the face of unexpected circumstances plays a major role in the evolutionary process. Human intelligence has coevolved with social interaction, cooperation and rivalry, and communication. The ability to learn from experience and to communicate and thereby coordinate with others has provided powerful adaptations for changing, complex environmental forces.

Beyond Calculation: The Next Fifty Years of Computing

Edited by Peter Denning and Robert Metcalfe; Copernicus, New York; 320 pages; $27 (hardcover)

Because humans and computers are such different kinds of systems, it should be possible to develop a symbiotic, complementary strategy for cooperative interaction. Alas, today's approaches are wrong. One major theme is to make computers more like humans. This is the original dream behind classical artificial intelligence: simulate human intelligence.

Another theme is to make people more like computers. This is how technology is designed today: the designers determine the needs of the technology and then ask people to conform to those needs. The result is an ever-increasing difficulty in learning the technology and an ever-increasing error rate. It is no wonder that society exhibits an ever-increasing frustration with technology.

Human beings have evolved over time to perform in the world through a variety of mechanisms. One is symbolic representation, supplemented by a rational processing system. Another is the use of perceptual representations. A third is a form of distributed processing, in which the world itself and other humans are part of the computational and representational process.

In general, humans can be characterized as pattern-recognizing, meaning-finding systems, excellent at interpreting information, finding meaning and explaining phenomena rapidly and efficiently. Humans usually go beyond the information available, relying heavily upon a large body of prior experience. Humans excel at pattern recognition, especially context-dependent recognition; people are very good at integrating meaning and context into a task. Usually this is very good, but it occasionally leads to unfortunate decision biases and perceptual narrowing that exclude alternative interpretations. When we are good, we are very, very good, and when we are bad, we are awful.

In general, perceptual processes are performed rapidly and efficiently with specialized, parallel processes. Human symbolic processes are slow, serial, and limited in power. Here there are severe limits on the size of working memory. People are excellent at determining meaning and maintaining the spirit of the content. They are poor at maintaining high accuracy, at integrating large quantities of symbolic information and at detecting patterns in symbolically displayed information.

There are several lessons to be learned from the above comments:

- If we want to empower people, we must translate symbolic problems and data collections into perceptual ones. Human working memory for symbolic information is limited: provide rich external sources of information. Exploit human sensory capabilities, which are extremely powerful and robust.

- Rely on people for rapid assessment and analysis. Use people for strategic overviews. Let people interpret and provide meaning to information.

- Do not rely on people for accurate or reliable responses or for precise information (e.g., numerical values, names or positioning control). Instead, treat any such information as an approximation. Ideally machines should take over the requirement for accuracy and reliability, letting people provide high-level guidance and interpretation.

The development of modern computers and their associated fast, real-time, interactive display systems makes it possible to translate otherwise symbolic information into a format that fits human cognition. Usually this means perceptual information rather than symbolic or numeric. But it also means eliminating or minimizing the need for the person to provide precise numerical information. In this way, people can be freed to do higher-level evaluation, to state intentions, to make midcourse corrections and reformulations of the problem.

BIOLOGICAL COMPUTATION

The differences between people and machines result from the form of logic and electronic circuits used by today's machines. Suppose we were able to grow biological circuits? Fifty years ago, nobody predicted the transistor, let alone integrated circuits and very-large-scale integration. Perhaps within the next 50 years we can do biological computation.

"Biological computation" means a system of neurons, grown biologically in an appropriate nutrient substrate, shaped for the computing requirements of the system under construction. I don't mean neural networks, which are computer simulations of abstract neurons. Nor do I mean DNA computation, in which the chemistry of DNA molecules is exploited to solve complex problems. I mean artificially grown neurons doing biologically real, brain-like operations.

The human brain is unexcelled at tasks such as pattern recognition, natural language and control of locomotion. The sensory system is unmatched in the sheer number and density of its powerful receptors for touch, temperature, taste, spatial orientation and, of course, sight and sound. Why build artificial logic circuits when we could use the already existing ones: biological cells?

Will there be other advances in computation? Very likely. Moreover, conventional computing will not go away. Today's computers are superior to biological computers in accuracy, precision and repeatability. I expect the two to merge, with biological computers excelling at the pattern-recognition, pattern-driven aspects of computing, and logic computers excelling at numerical computation and anything that requires precision and repeatability. The result can be a true complement of action, a true symbiosis of people and machines.

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JOHN HASPIEL

Donald A. Norman is a fellow at Apple Computer, Inc. and professor emeritus at the University of California, San Diego, where he was founding chairman of the Department of Cognitive Science. He was one of the founders of the Cognitive Science Society and has been chair of the society and editor of its journal. He is a fellow of the American Academy of Arts and Sciences and received an honorary doctorate from the University of Padova in Italy.

Norman is the author of many books, including The Design of Everyday Things, Turn Signals Are the Facial Expressions of Automobiles *and* Things That Make Us Smart.

IT Careers

JOB SURFING

sites for career-minded IS professionals

– By Leslie Goff

DISGRUNTLED

Hang out here for a while when you're feeling disparaged by your boss or co-workers. It just may put a smile back on your face and at least will remind you that you aren't alone. Although it isn't IS-specific, this site has a lot of information systems fans, judging from reader comments and submissions.

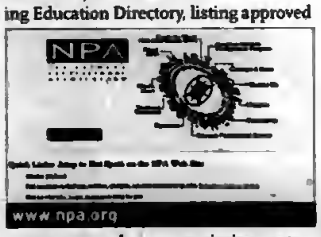
Disgruntled tags itself "The Business Magazine for People Who Work for a Living," and it strikes a tone of pithy proletariat cynicism throughout, right down to the site's mascot, Grunty, a scowling, cigar-champing variation on the yellow smiley face. Grunty's suggested Christmas gifts for co-workers ranged from a sharpening stone, "for the co-worker who is the consummate backstabber," to Chap Stick, for co-workers who are busy all year kissing up.

The site also has information you can use, such as an article on how to find out if your former employer is bad-mouthing you, and great advice on employee discrimination, sexual harassment and other hazards of the workplace.

And just in case your boss walks by while you're online, you can use the Grunty icon at the bottom of each screen to switch to a fake annual report, so it looks like you're toeing the line.

THE NETWORK PROFESSIONALS ASSOCIATION

With employers increasingly favoring certified IS professionals, this site is worth bookmarking for its guide to the Certified Network Professional (CNP) Program. Get sample questions online or download a complete practice test and a Master Objectives list. A CNP Continuing Education Directory, listing approved

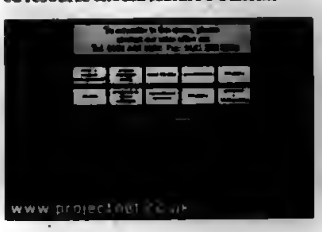


courseware and program requirements, and an application are also available. That leaves you no excuse not to get started on a useful addition to your resume.

The site's other sections vary in quality. Notably, the Technical Resources section is weak, with material written exclusively by some of the vendors that sponsor the site. A white paper, "Using the Right Tools to Find the Real Cause of Network Problems," advises, "Network problems can range from simple to extremely complex." Really?

PROJECTNET

This site has a great idea going: an information resource for IS project managers. Unfortunately, through sins of omission, it doesn't quite hit its mark. The site is worth perusing once or twice — particularly if you're interested in IS in the U.K. — for the case studies. You can also get the previous month's edition of *Project Manager Today*. But a community-oriented resource should feature a bulletin



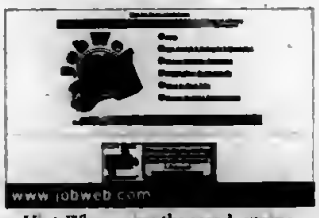
board or some opportunity for communication among its audience.

The site also lacks job listings. But if you're interested in job opportunities in the U.K., a directory of recruiting services lists a plethora of U.K. IS consulting firms you can ring up on the telephone.

JOBWEB

Use this site to search for IS jobs that require only one to three years' experience or ones aimed at recent college graduates. After all, it's maintained by the nonprofit National Association of Colleges and Employers. But be patient; the graphical navigation map at the site's home page is tedious and hard to follow.

Skip the career-planning section — it's written for college students — and click directly on the Jobs button. This will get you to employer information and corporate and federal job postings, which you can search by location and keyword.

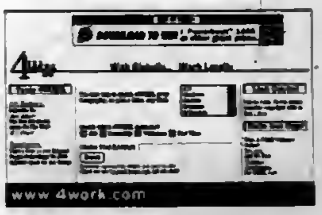


Hint: When using the search engine here, use "MIS" to search for IS jobs. And don't expect big results. A search for "MIS jobs/national" produced three employers. Still, if you're less experienced and looking for the job that could be your first big career break, check this site regularly. It's used by major employers.

4WORK

This is an absolutely no-frills general job search site. Its value to IS professionals may be somewhat limited. But it never hurts to acquaint yourself with another job search engine, especially one with an automatic electronic-mail agent that notifies you when new postings match your keyword selections. The home page promises "catalogs" of jobs, volunteer positions, internships and youth positions, but clicking on each category merely takes you to a search engine.

Stick with the jobs page. There, the keyword searches work best using job titles such as "programmer/analyst" or functional phrases such as "information

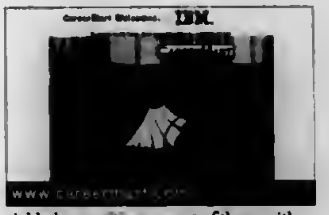


systems." Using skill sets as keywords didn't yield as many hits. For example, the keywords "information systems" brought up 62 jobs for all states (one on the East Coast, one in Illinois and 60 west of the Continental Divide). But using the keyword "SAP" garnered fewer than 10 jobs. Most of the IS employers are consulting firms.

CAREER MART

This site wants to impart a sense of a virtual community. It succeeds graphically, but the irrelevance of much of the content to experienced job seekers weakens the site. An appealing, colorful navigation map greets you from the home page. It offers several entry points to the site, including Colleges, Companies, Newsstand, Market Research and Entrance. The main entrance is your best bet if you want to go directly to job listings.

Search the job listings by state or region, job category and, optionally, company name. Relevant job categories available include "computer," "consulting" and "information technology." A search for jobs in those categories in New York



yielded 17 positions, most of them with consulting or research firms. But also included was a handful of jobs at companies such as New York Life Insurance Co., Dannon Co. and Children's Television Workshop. Like the 4Work site, CareerMart offers an automatic E-mail agent that will notify you when matching jobs are posted.

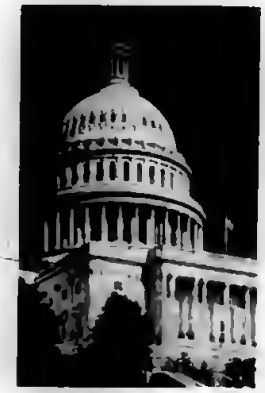
Goff is a freelance writer in New York.

REGIONAL SCOPE
Washington

A TALE OF TWO CITIES

The nation's capital boasts two very opposite IS job markets and too little talent in each.

For job seekers, it's the best of times; for hiring managers, it's the worst of times



By Linda Wilson

WHEN IT COMES to employment for computer professionals, Washington is actually two cities: One populated with rapidly growing telecommunications and Internet enterprises; and another with static government agencies and nonprofit organizations.

Washington is well-known as a city of government and nonprofits. It isn't known for its high-technology corridor, which is based in northern Virginia, but it should be. The nation's capital is among "the top five or six markets as far as demand for IS talent," largely because of this technology corridor, says Gene Raphaelian, vice president of management strategies at Gartner Group, Inc. in Stamford, Conn.

The bulk of these companies are telecommunications firms and Internet or online services. They include MCI Communications Corp. in Washington; America Online in Vienna, Va.; LCI International, Inc. in McLean, Va.; UUnet Technologies, Inc. in Fairfax, Va.; and Online Resources & Communications Corp. in McLean.

"People still don't think of [the Washington area] as a place for business," says Jack McLean, a managing partner at the Greater Washington Initiative, a division of the Greater Washington Board of Trade. The Initiative, which is funded by major corporations and government jurisdictions, was formed three years ago to promote the Washington area for commerce.

"The market has been feverishly paced for the last 2 1/2 years, and we expect it to continue into the year 2000," says Paul Villella, a managing partner at Source Services Corp., a placement firm in Vienna. Villella's office covers the entire metropolitan area. His office handled 2,100 openings for full-time positions last December — triple the number of positions open in December 1995.

WHAT'S HOT

The hot skills in the area include object-oriented languages such as C++ and Smalltalk; relational databases such as those from Oracle Corp.; graphical user interface tools such as Powersoft Corp.'s PowerBuilder; and enterprise business application suites such as those from PeopleSoft, Inc.

Certain mainframe skills, particularly Cobol, are also hot. Unlike firms in other metropolitan areas where companies primarily seek contractors to work on year 2000 conversion projects, Washington-area companies are looking for permanent staffers to develop core transaction-processing applications such as billing systems.

Managerial talent is also in demand at fast-growing technology companies. "When you go out and hire 300 or 400 programmers, you need some managers," Villella says. Because these companies are growing so fast, they simply don't have enough in-house leadership skills, so they're hiring outsiders, he says.

The tight supply of candidates also explains why Alex Seltzer has had a hard time finding the programming and managerial talent he needs. Seltzer is executive vice president of systems and technology at Online Resources & Communications, a home-banking service bureau for commercial banks.

Seltzer, who looks for programmers with experience in C++ or Windows NT, says he believes his recruiting troubles stem from "a lot of competition in the region."

That competition includes MCI. Last year, the telecommunications provider hired 2,000 technical people nationally, including 204 in Washington. The company plans to hire another 2,000 this year, including 200 in Washington, according to Jimmy Webster, senior manager of recruiting at MCI. Of the technical people MCI will hire in Washington this year, 25% will work with the network and 75% will work with business applications, such as billing systems.

MCI is looking for professionals with the following skills: Hypertext Markup Language programming; object-oriented programming; wide-area network engineering, with knowledge of frame relay or Asynchronous Transfer Mode; and network management, with knowledge of remote monitoring.

Wilson is a freelance writer in Glen Ellyn, Ill.

POWER PLAYERS

The top 10 employers in greater Washington (Ranked by total number of employees nationwide)

Source: The Washington Post, 1995

RANKING	COMPANY	NUMBER OF EMPLOYEES
1.	Marriott International Corp.	179,400
2.	Lockheed Martin Corp.	160,000
3.	Motel Corp.	50,400
4.	MCI Communications Corp.	50,367
5.	USAir Group, Inc.	42,082
6.	Gannett Co.	39,100
7.	Manor Care, Inc.	38,000
8.	General Dynamics Corp.	26,800
9.	Giant Food, Inc.	26,684
10.	Host Marriott Services Corp.	22,400

CAPITAL CASH

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CIO/VP	$96,000	$96,000
Director, networks	[illegible]	[illegible]
Mainframe project manager	$63,000	$59,000
Database manager	[illegible]	[illegible]
Client/server project manager	$59,000	$61,000
Senior systems analyst	[illegible]	[illegible]
Senior systems programmer	$54,000	$52,000
Network administrator	[illegible]	[illegible]
LAN manager	$47,000	$47,000
Technical specialist	[illegible]	[illegible]

http://careers.computerworld.com

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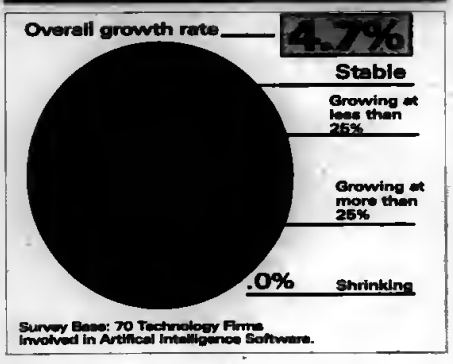
Career Survey: Artificial Intelligence Software

Industry Hiring Trends



Survey conducted between October '96 and December '96;

Regional Growth Analysis

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Career Survey: Artificial Intelligence Software

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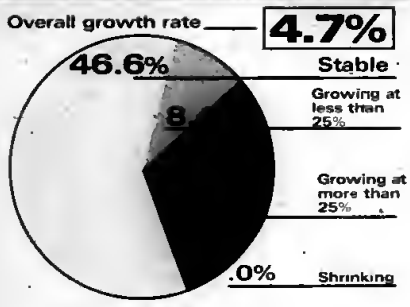

Survey Base: 70 Technology Firms involved in Artifical Intelligence Software

Survey conducted between October '96 and December '96.

Regional Growth Analysis

CorpTech, a directory publisher in Woburn, Mass., tracks the U.S. 35,000 technology manufacturers
This survey relates to the 29,383 tracked firms with fewer than 1,000 employees

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Remain a World Leader in the Nuclear Fuel-Cycle Business

Your Choice:

A Career With a Global Company about to Make History

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USEC is a global energy company that produces and markets uranium enrichment services to 64 utilities that own and operate commercial nuclear power plants in 14 countries, including the United States. With headquarters in Bethesda, Maryland, USEC manages gaseous diffusion nuclear fuel enrichment plants in Paducah, Kentucky, and near Portsmouth, Ohio, and conducts development and demonstration activities of a new laser-based enrichment technology in Livermore, California. USEC operations include approximately 5,000 people. We're seeking the following professionals for our Headquarters MIS Department:

Senior Manager of Delivery and Oversight:

In this position, you will oversee multiple projects and project managers and coordinate resources at headquarters and remote sites. Your responsibilities will include coordination of strategy and applications standards and administration of departmental budgets. To be successful, you must possess a BS in Computer Science or Business and have 7+ years experience in a MIS Manager or an operations oriented company. In addition you must have demonstrated broad based experience in leadership, planning and consensus building, budgets, and excellent interpersonal skills. Strong technical knowledge for LANs/WANs, strong project management and negotiation skills, and knowledge of outsourcing contracts are essential.

Senior Manager of Enterprise Technology:

You will plan and oversee the research, evaluation and integration of new technology and oversee the development and implementation of corporate-wide technical training programs. As Manager you will direct the maintenance and purchasing of computer equipment and systems and direct and set standards for corporate wide telecommunications. To be successful, you must possess a BS in Computer Science or an appropriate field in information technology, 7+ years experience and working knowledge of networked environments. Also, demonstrated broad-based experience in leadership, planning and consensus building, budgets, and excellent interpersonal skills are required.

Senior Manager of Business Systems:

Utilizing your strong user interface capabilities, you will lead efforts in project management of software development, systems specifications analysis, design, and testing. To qualify you must have a BS in Computer Science or an appropriate field in information technology, have 7+ years experience and working knowledge of computing environments. Strong communication and presentation skills and demonstrated broad-based experience in leadership, planning and consensus building, and budgets are essential.

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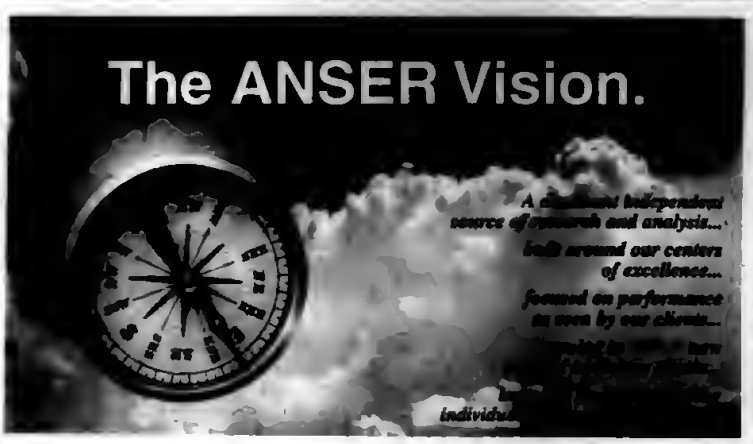
With our corporate structure, your contributions will be quickly recognized and rewarded with our employee incentive program and excellent benefits package. For immediate consideration, please forward your resume and salary history to: **United States Enrichment Corporation, Attn: Human Resources, 6903 Rockledge Drive, Bethesda, MD 20817, Fax: (301) 564-3203. Or, E-mail: jobs@usec.com** An Equal Opportunity Employer M/F/D/V



The following entry-, middle- and senior-level positions are currently available in the Washington, DC metro area.

PROGRAMMERS - Positions available in Gaithersburg, MD, and Columbia, MD, for individuals with C++ and/or Oracle/Sybase experience. MS Access, MS Visual Basic, Unix, RISC 6000 skills a plus.

TEST ENGINEERS - Positions available in Gaithersburg, MD, and Columbia, MD. Experience with automated test tools in C/C++, Unix environment. Minimum 5 years' experience and BS required.

VIRTUAL REALITY PROGRAMMER/DEVELOPER - Requires experience with C, C++, HTML, 3D graphics programming and object-oriented architecture/framework/application design and development.

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- Information Systems Engineers with skills in HTML, CGI scripts, UNIX, and Windows NT
- Economic and Cost Analysts with skills in cost estimation, business and decision analysis, risk management and cost/benefit analysis
- Networking and Distributed System Engineers with skills in UNIX, Windows NT, ATM, TCP/IP, X.400/500, CORBA, HTML/Java, and RDBMS
- Air Traffic Management Software Engineers with skills in C/C++, UNIX/POSIX, Java, TCL/TK, TCP/IP Sockets, GUI, CORBA, Sybase Internet/Intranet

Reston, VA:
- Information Systems Engineers with skills in HTML, CGI scripts, UNIX, and Windows NT.
- Artificial Intelligence Engineers with expertise in LISP, Decision Support, Training System Development, and Intelligent Agents
- Economic and Cost Analysts with skills in cost estimation, business and decision analysis, risk management and cost/benefit analysis
- Communications Systems Engineers with skills in digital design and signal processing, RF communications, cellular, SATCOM, and wireless communications
- Modeling and Simulation Engineers with skills in C, C++, Java, PERL, and UNIX

Hampton Roads, VA:
- Senior Engineer to advise senior Joint STARS staff on concepts of operations for Joint STARS

Eatontown, NJ:
- Information Systems Engineers with skills in HTML, CGI scripts, UNIX, and Windows NT
- Networking and Distributed System Engineers with skills in UNIX, Windows NT, ATM, TCP/IP, X.400/500, CORBA, HTML/Java, and RDBMS
- Communication Systems Engineers with experience in TCP/IP, SNMP, OSPF, ATM and network topology
- Communications Systems Engineers with skills in digital design and signal processing, RF communications, cellular, SATCOM, and wireless communications
- Modeling and Simulation Engineers with skills in C, C++, Java, PERL, and UNIX

Bedford, MA:
- Information Security Engineers with experience in computer networks, data base management systems, and operating systems
- Information Systems Engineers with skills in HTML, CGI scripts, UNIX, and Windows NT
- Artificial Intelligence Engineers with expertise in LISP, Decision Support, Training System Development, and Intelligent Agents
- Economic and Cost Analysts with skills in cost estimation, business and decision analysis, risk management and cost/benefit analysis
- Networking and Distributed System Engineers with skills in UNIX, Windows NT, ATM, TCP/IP, X.400/500, CORBA, HTML/Java, and RDBMS

To inquire about these positions, please forward your resume indicating position of interest to: The MITRE Corporation, Corporate Recruitment Dept. DG/CWO127, 202 Burlington Road, Bedford, MA 01730, fax (617) 271-3402. Or e-mail it to: jobs@mitre.org

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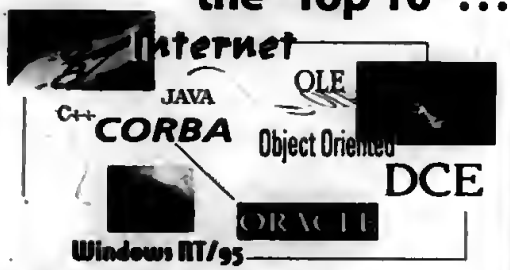

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In this position, you will design, code, test, correct and document computer programs in accordance with functional specifications, develop software for conversion, and perform systems defect resolution and unit/system testing. You will also work with data suppliers and customers to determine data layouts and ensure data integrity. To qualify, you must have 1-4 years' experience with Unix/C programming and a BS in CS or a related field. Strong analytical, communications and PC/mainframe skills are also required.

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We'll count on you to oversee multiple real estate systems development projects on a nationwide basis. This will include participating in all phases of commercial product development and coordinating the activities of internal/third-party resources. To succeed, you'll need 10+ years' experience in commercial product development and project management, combined with at least 2 years of hands-on experience with DBMSs and C/C++ programming languages in a Unix and Windows environment. A bachelor's degree in information systems management or a related technical discipline is required.

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  - CNS/ATM
  - Weather Systems
  - Aircraft Integration
  - Network Enabled Services
- Data Communications and Network Engineers
- Network Design/Operations Engineers and Technical Support
- Acceptance Test Engineers
- Communications Systems Engineers
- Software Development Engineers
  - Real-Time Embedded C with pSOS and/or GUI
  - Object Oriented C++
  - Object Oriented Database Design and Engineering
  - Software Test
  - ORACLE and RDBMS, Development and/or Database Administration
- Internet/Intranet Web Developers (HTML, Perl, Java and CGI)
- OMNI MARK/SGML Programmers
- OPNET Modelers
- Commercial-off-the-Shelf (COTS) Integration/Development (Newport Beach, CA)
- Avionics Integration Systems Engineers (San Diego, CA/ Oklahoma City, OK)
- Network Management Systems Engineers (Colorado Springs, CO)
- C++ Software Development (Newport Beach, CA/ Colorado Springs, CO)

For in-depth insight into ARINC, specific details about the positions above, as well as other opportunities available at ARINC locations across the nation, visit our Web site:

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For immediate review of your resume and consideration for local interviews, please forward your resume, indicating desired position(s) and geographic preference, to ARINC, 2551 Riva Road, Dept. HR-005-97, Annapolis, MD 21401-7465. FAX: (410) 573-3201.

For positions on the West Coast: Dawn Ridz, 4055 Hancock Street, Dept. HR-005-97, San Diego, CA 92110, FAX: (619) 523-1278, e-mail: dridz@arinc.com EOE

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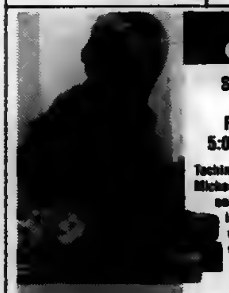

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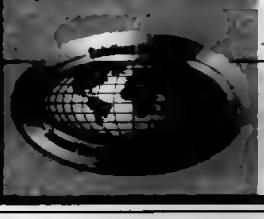

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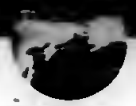

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- **Databases:** Informix DBA; Adabase/Natural; Oracle; DB2 DBA; PowerBuilder, Sybase; FoxPro/Oracle
- **Networking/Communications:** RF Engineer; EDI, EC, ANSI, X12; LAN Administrator; LAN/WAN, Netware 4.1; Senior Network Engineer NT; VMS Network Engineer; X.500, X.400, UNIX
- **Financial Systems:** Mortgage/Business Applications; Accountants, Financial Analysts; Military Payroll Systems
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Marketplace

TECHNOLOGY WATCH

CLONES nibble at APPLE

by Amy Malloy

Clones are nothing new. Since Compaq Computer Corp. created the first IBM PC clone in 1982, computer users have had 15 years to become comfortable with the concept.

Thanks to IBM clones, Macintosh clone vendors have avoided one obstacle because "cloning and direct sales are already established," says Kevin Hause, an analyst at International Data Corp. in Framingham, Mass. But the formidable task of gaining market acceptance remains.

Buyers need an enticement to purchase clones. According to analysts, the two major incentives are price and niche products.

"The incentive is that sometimes you can get the same product cheaper, and sometimes you can get different product configurations," Hause says.

Opportunities for such innovation may increase when the Common Hardware Reference Platform (CHRP) becomes available, Hause says. The CHRP will allow a user to switch among several operating systems. Apple Computer, Inc. says the CHRP design should be available to licensees later this year.

The CHRP "will lower cost tremendously," says James Staten, an industry analyst at Dataquest in San Jose, Calif. He says it will expand the market, enabling users to create their own clones.

Savings typically range from $200 to $500, says Tim Bajarin, president of Creative Strategies, Inc., a consultancy in San Jose.

But Hause emphasizes that price isn't the sole determining factor when choosing a product. Other factors, such as warranty, hard-drive packages and machine configurations, affect a product's value.

Another future development that may enhance Macintoshes is Apple's new operating system, which is scheduled to ship in mid-1998. Code-named Rhapsody, it will combine technologies from Apple and Next Software, Inc.

THE COMPETITION

Vendors that offer Mac OS clones include Power Computing Corp., Motorola Computer Group, Umax Computer Corp., APS Technologies and DayStar Digital, Inc.

According to analysts, Power Computing, the first Macintosh clone vendor, is the market leader. But analysts won't break out market share in this market because it's still too early to determine percentages. "We will get a clearer picture as things go forward. This summer or fall we should have a better handle of the [market share]," Staten says.

"Power Computing has already proved itself as a Macintosh cloner and supported it well. If buying for corporate use, [a company] needs to seriously look at what Power Computing is doing," Bajarin says.

THE APPLE FACTOR

Unlike IBM and its early clone vendors, Apple doesn't shun such competition, at least not for now. "There is a lot of talk about how the cloners are eating market share from Apple and not expanding Apple's market share yet. But you have to look at what would have happened if there hadn't been an alternative" to Apple, Hause says. "How many people have stayed in the Macintosh fold because of clones?" He also points out that supporting many configurations is difficult, so Apple can become more focused by giving up some niche areas.

So far, Apple hasn't lost much of its market. Macintosh clone vendors last year sold between 500,000 and 550,000 systems, while Apple sold 4.5 million Macintoshes, according to Creative Strategies. "This takes a little from Apple's bottom line but doesn't do any damage at all," Bajarin says.

And it gives the buyer a lot more choices. "When you are buying a Macintosh clone, you have a lot more options, so you should go in more knowledgeable. You have to go in knowing what level of processor you want, what size hard drive, what add-ons and what memory. You will want to have your price threshold," Staten says.

Malloy is Computerworld's assistant researcher.

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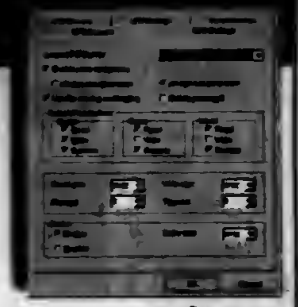

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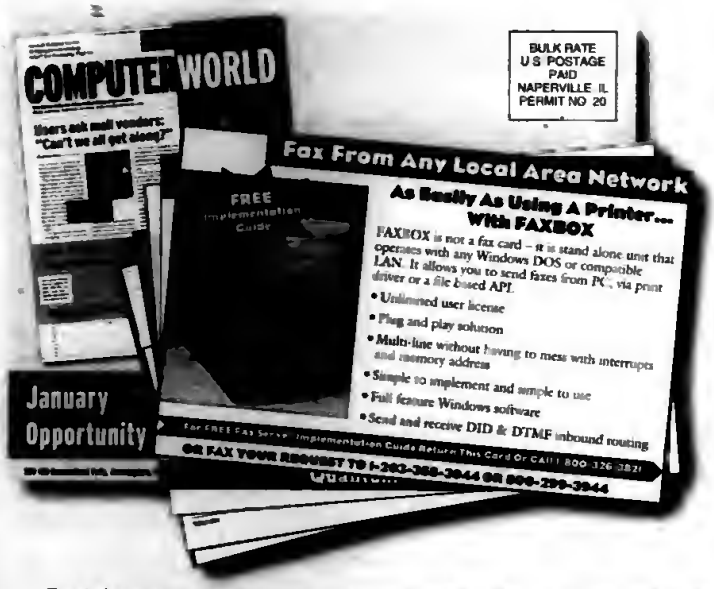

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Compuware Corp.	16.5
McAfee Associates (H)	15.8

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McAfee Associates (H)	7.75
Yahoo! Inc.	7.00
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Lycos Inc.	4.63
Forte Software	4.00

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INDUSTRY ALMANAC

Seagate catches the wave

Seagate Technology, Inc.'s stock price has more than doubled since July, and the maker of data storage products just posted record quarterly revenue of $2.4 billion.

So is the Scotts Valley, Calif., vendor doing as well as that sounds? Yes, according to two stock analysts who rate the company as a long-term buy for their customers.

"In this environment, [Seagate] is fine for long-term investment," says Michael Geran, vice president of the Pershing Division of Donaldson, Lufkin & Jenrette Securities Corp. in Jersey City, N.J. Some customers might resist buying Seagate stock because of its relatively high price, which is hovering just below $50 per share. But Geran says he will keep his recommendation.

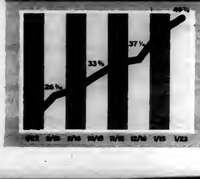
Still, Seagate falls into the category of "roller-coaster stocks," Geran says. "Several years ago, you couldn't give this stock away," he says. He adds that it helps that Seagate is the industry's largest storage products maker, with a diverse product line. "Money gravitates to the big companies," he says.

Jean Orr, an analyst at A. G. Edwards in St. Louis, says Seagate and other technology manufacturers saw a big correction in July. Demand for storage products was slow in the first half of last year. "There was concern the second half of the year would be slow from a demand standpoint," she says.

There was some adjustment in Seagate's quarterly reports for March and June as the company merged its operations with Conner Peripherals, Inc. Seagate acquired Conner Peripherals in February.

Geran and Orr predict the stock will do well in the next six to 12 months. Increased demand for PCs in the U.S., and the machines' requirements for more storage because of voice and audio data capabilities, will help, Orr says. — Matt Hamblen

SEAGATE STOCKS UP



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T	46.88	31.63	AT&T	50.00	0.13	-0.3
ASND	20.23	25.00	Ascend Communications (H)	73.13	-0.88	1.2
BNYN	40.75	1.25	Banyan Systems Inc	8.88	0.63	14.7
BAY	49.00	18.13	Bay Networks Inc	22.75	1.50	6.2
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BLS	45.50	35.23	BellSouth Corp	42.00	0.88	3.1
BRKT	42.25	32.88	Brooktrout Technology	26.50	1.50	0.0
CS	45.63	26.50	Cabletron Systems	34.50	-0.63	1.9
CSCC	91.25	34.13	Cascade Communications	40.83	15.50	27.3
CGRM	24.13	11.63	Centigram Communications	13.63	-0.63	-4.7
CSCO	75.75	33.25	Cisco Systems Inc (H)	58.63	3.63	5.0
CLIX	9.25	3.50	Compression Labs Inc	5.75	0.19	-4.8
CMNT	10.50	6.00	Computer Network Tech	8.25	0.00	0.4
XCOM	12.75	6.75	CrossComm	7.75	-0.50	-0.1
DIGI	38.30	19.63	DSC Communications	21.50	3.88	10.6
FORE	44.75	23.50	FORE Systems Inc	29.50	3.25	9.9
GDC	13.00	3.13	General DataComm Inds.	3.88	-0.25	2.9
GSX	46.88	52.88	General Signal Networks	45.25	-0.50	1.1
GTE	49.23	37.73	GTE Corp	44.25	1.50	3.0
LU	53.63	29.75	Lucent Tech (H)	53.50	1.63	3.1
MADGF	46.63	9.15	Madge Networks NV	14.25	1.88	10.7
MCIC	35.31	22.38	MCI Communications Corp (H)	34.50	-0.00	7.6
MNPI	34.50	3.50	Microcom Inc	12.00	-0.38	3.0
NETM	18.88	8.00	NetManage Inc (L)	3.00	0.25	-4.8
NTRX	10.88	3.75	Netrix Corp	3.31	-0.50	9.6
NCDI	19.88	2.88	Network Computing Devices (H)	13.25	0.88	5.0
NWK	36.00	11.13	Network Equipment Tech	17.50	-0.25	7.4
NETG	50.25	15.25	Network General	26.50	-2.25	7.8
NN	37.25	20.25	Newbridge Networks Corp	12.50	-0.88	-2.8
NT	72.50	43.13	Northern Telecom Ltd (H)	69.38	2.00	3.5
NOVL	15.63	8.75	Novell Inc	10.56	0.88	9.0
NYN	59.23	42.00	Nynex Corp	50.17	0.50	1.0
OCTL	31.75	13.50	Octel Communications Corp	17.88	0.63	9.8
ODSI	29.88	11.25	Optical Data Systems Inc	18.00	-0.50	3.4
PAC	39.00	25.88	Pacific Telesis	38.13	0.88	1.8
PCTL	44.72	18.13	PictureTel Corp (L)	21.25	0.56	2.3
PTON	7.50	2.00	Proteon Inc	2.50	0.25	-9.1
RACO	7.00	3.50	Racotek Inc	3.69	-0.13	-4.8
RETX	10.38	1.88	Retix	3.13	0.88	20.6
SBC	60.53	46.00	SBC Communications	53.00	0.00	1.0
SFA	20.18	12.88	Scientific Atlanta Inc	18.00	1.75	10.8
SHVA	87.25	19.88	Shiva Corp	19.25	1.50	6.7
FON	43.50	34.50	Sprint Corp	39.75	0.00	0.0
SMSC	18.75	8.38	Standard Microsystems Corp	9.13	0.00	0.6
USRX	105.50	43.63	US Robotics	67.75	5.50	3.6
USW	33.30	27.25	US West Inc.	32.63	-0.88	-2.6
XIRC	31.13	9.50	Xircom (H)	88.75	0.00	0.0
XYLN	76.00	23.88	Xylan Corp	32.75	0.00	1.2
AALR	15.25	6.13	Advanced Logic Research	11.50	-0.25	-2.2
AAPL	60.00	16.00	Apple Computer Inc	17.88	0.13	0.3
ASTA	8.88	3.94	AST Research Inc	4.75	-0.00	-1.3
CPQ	87.13	33.88	Compaq Computer Corp	82.00	3.75	4.8
DELL	67.00	12.50	Dell Computer Corp	50.69	1.88	2.9
GATE	88.25	20.25	Gateway 2000 Inc	83.00	6.50	11.8
HWP	37.75	37.75	Hewlett Packard Co.	51.30	-2.18	-4.4
MUEI	25.60	8.75	Micron International Inc	20.38	-2.08	9.1
NIPNY	80.88	49.88	NEC America	59.25	-0.75	-1.3
SGI	50.36	17.88	Silicon Graphics	27.69	0.88	0.0
SUNW	19.11	20.38	Sun Microsystems Inc	32.00	0.69	2.2
AMH	14.00	6.75	Amdahl Corp	11.38	0.00	0.0
DGN	19.13	9.00	Data General Corp	17.75	0.00	2.9
DEC	76.50	38.38	Digital Equipment Corp	50.50	0.63	3.7
IBM	170.13	89.13	IBM (H)	149.50	14.75	9.0
MDCD	50.25	6.23	Meridian Data Inc	7.50	0.44	6.2
NETF	6.38	2.25	NetFrame	5.25	0.50	13.0
SQNT	80.13	10.13	Sequent Computer Sys.	19.85	0.13	-0.8
SEQS	5.63	1.88	Sequoia Systems Inc.	2.13	0.00	0.0
SRA	52.13	16.83	Stratus Computer Inc.	88.88	1.38	4.7
TDM	15.25	6.26	Tandem Computers Inc	10.13	1.13	8.7
UIS	5.13	3.58	Unisys Corp	5.88	-0.88	5.2
ADBE	43.13	68.50	Adobe Systems Inc	50.50	1.88	2.7
AMSWA	3.81	3.63	American Software Inc	7.13	-0.25	-3.4
APLX	42.50	10.13	Applix Inc	24.25	-0.88	1.5
ARSW	82.75	21.00	Arbor Software	58.50	-4.13	12.6
ADSK	44.25	18.50	Autodesk Inc	32.50	3.50	12.3
BGSS	31.75	14.88	BGS Systems Inc (H)	29.00	1.25	4.5
BMCS	48.75	21.38	BMC Software Inc	45.88	1.63	3.4
BOOL	25.25	13.00	Boole & Babbage	23.25	0.50	2.2
BORL	21.25	4.75	Borland Int'l Inc	8.31	-0.13	-2.9
BOBJY	53.50	8.63	Business Objects	14.00	1.88	10.9
CAYN	11.88	3.81	Cayenne Software Inc	3.63	1.19	26.8
CNTR	7.88	2.63	Centura Software	4.69	0.63	15.6
COGNF	39.50	12.18	Cognos Inc	29.25	3.38	13.0
CA	69.88	57.63	Computer Associates	64.00	-0.58	-0.8
CVN	14.13	5.75	Computervision Corp	7.00	0.00	0.0
CPWR	67.25	13.13	Compuware Corp	67.25	5.50	16.5
CSRE	32.00	10.75	Comshare Inc	15.75	1.25	3.4
COSFF	15.88	0.50	Corel Corp	6.75	-0.69	-9.2
DWTI	8.35	7.03	Dataware Technologies Inc	4.00	0.75	18.2
FILE	67.00	19.13	FileNet Corp	19.25	1.75	-8.3
FRTE	81.75	24.75	Forte Software	37.75	4.00	11.0
FTPS	15.88	4.00	FTP Software Inc.	6.75	0.08	0.9
HUMCF	47.63	23.00	Hummingbird Comm. Ltd	32.50	0.00	1.2
HYSW	26.38	8.73	Hyperion Software Corp (H)	24.25	1.25	-4.9
IRIC	16.18	11.00	Information Resources	15.63	0.00	0.0
IFMX	56.73	16.00	Informix Corp	21.13	2.64	10.3
INGR	80.13	8.63	Intergraph Corp	10.25	0.50	3.8
LEAF	19.25	1.83	Interleaf Inc	2.25	0.25	12.5
ISLI	10.38	7.50	Intersolv Inc	9.87	0.10	3.9
INTU	69.50	35.00	Intuit Inc	31.88	3.00	-8.8
TLC	30.31	13.39	Learning Co. (The)	10.88	0.88	5.8
LGWX	22.25	5.25	Logic Works	7.13	-0.88	10.0
MAPS	10.88	7.88	MapInfo Corp	8.50	-0.50	5.8
MATH	9.25	2.75	MathSoft	4.25	0.75	21.4
MCAF	63.75	17.13	McAfee Associates (H)	56.75	7.75	15.8
MENT	18.50	7.88	Mentor Graphics	10.88	0.25	2.5
MIFGY	21.23	8.38	Micro Focus	10.00	0.50	2.8
MCXI	18.63	5.08	Micrografx Inc	5.25	0.88	0.0
MSFT	34.50	44.88	Microsoft Corp (H)	95.50	0.00	9.3
ORCL	51.00	26.50	Oracle Corp	39.88	-2.13	-5.7
PMTC	83.50	29.63	Parametric Technology (H)	50.15	0.75	1.5
PARQ	14.63	1.69	ParcPlace Systems Inc	1.88	-0.88	3.8
PSFT	56.75	10.38	PeopleSoft (H)	93.75	0.00	0.8
PTEC	60.50	12.88	Phoenix Technologies	15.88	-0.63	9.8
PSQL	13.75	3.13	Platinum Software	12.50	-0.94	3.8
PLAT	18.75	9.23	Platinum Technology	14.56	0.94	0.0
PRCS	29.00	12.73	Progress Software Corp	19.00	1.00	-5.8
RNBO	30.25	14.83	Rainbow Technologies Inc	19.00	0.13	-0.3

Exch	52-Week Range		Company	Jan. 24 2pm	Wk Net Change	Wk Pct Change
RBDQ	61.88	37.13	Red Brick Systems Inc	24.75	1.75	7.8
SAPE	58.25	39.25	Sapient Corp	45.50	3.75	8.8
SCOC	9.11	5.50	SCO Inc.	8.00	-0.38	-4.5
SDTI	34.50	22.63	Security Dynamics Tech	33.00	1.98	4.0
SQAR	88.75	17.88	SQA Inc.	28.23	0.13	0.4
SOTA	19.75	8.88	State of the Art	34.00	1.38	10.9
SSW	81.00	28.25	Sterling Software Inc.	30.00	1.88	5.2
SDRC	37.88	13.00	Struct. Dynamics Research	24.25	-0.33	1.0
SYBS	50.38	19.50	Sybase Inc	18.19	0.69	3.3
SYMC	18.13	8.75	Symantec Corp.	16.50	-0.44	-2.6
SNPS	60.50	25.08	Synopsys	43.13	2.18	3.8
SSAX	69.75	8.23	System Software Assoc.	10.75	0.63	-5.5
SYSF	39.88	5.28	Systemsoft Corp.	14.25	0.83	4.6
TRUV	9.63	2.44	Truevision Corp	3.19	-0.44	12.1
VIEW	17.50	8.88	Viewlogic Systems	13.17	0.73	3.0
VMRK	12.63	5.00	VMark Software Inc	6.50	0.13	3.9
WALK	13.88	7.00	Walker Interactive Systems	13.50	0.00	0.0
WALL	23.50	12.25	Wall Data Inc	17.88	1.88	13.7
WANG	88.13	15.88	Wang Laboratories Inc	22.75	1.00	4.8
AOL	71.00	22.50	America On Line	36.50	5.39	12.6
BBN	54.75	15.88	BBN Corp	35.88	-0.88	-3.4
CSRV	25.50	8.63	CompuServe Corp.	10.94	0.83	2.8
EDFY	80.75	15.00	Edify Corp	15.88	0.25	1.8
LCOS	88.25	5.75	Lycos Inc	38.33	4.63	24.1
NETC	60.50	12.25	Netcom On-Line	33.25	0.00	0.0
NSCP	86.00	34.00	Netscape Comm. Corp	57.75	-5.25	12.2
ONKT	42.25	11.00	Open Market Inc	14.38	1.13	8.5
PSIX	19.38	6.75	PSINet	8.13	-0.19	-2.0
QDEK	22.13	5.04	Quarterdeck Corp.	5.60	0.69	14.3
RAPT	18.25	12.75	Raptor Systems	21.50	-0.75	-3.4
SCUR	46.23	6.00	Secure Computing Corp.	8.25	-0.25	-2.9
SPYG	45.50	10.00	Spyglass Inc.	52.75	0.13	1.0
YHOO	43.00	15.50	Yahoo! Inc	32.88	7.00	27.5
AMD	35.00	10.23	Advanced Micro Devices (H)	31.75	-2.62	-7.8
ADI	88.88	12.75	Analog Devices Inc (H)	27.88	-0.63	-8.8
CHPS	26.00	8.13	Chips and Technologies	14.25	-1.00	-6.6
CRUS	27.25	12.63	Cirrus Logic	15.31	1.44	-8.6
CY	16.63	8.13	Cypress Semiconductor Corp	12.88	1.25	-8.8
CYRX	60.50	11.88	Cyrix	22.88	1.63	-6.6
INTC	153.00	81.00	Intel Corp. (H)	153.88	8.44	3.8
LSI	60.00	17.00	LSI Logic Corp.	33.00	-0.90	-1.5
LSCC	52.88	19.75	Lattice Semiconductor (H)	49.63	-0.38	-0.8
MCRL	40.88	12.00	Micrel Semiconductor Inc. (H)	35.25	3.50	-4.1
MU	60.88	18.63	Micron Technology	31.75	0.75	2.4
MOT	85.75	64.13	Motorola Inc (H)	66.38	-2.35	-4.0
NSM	27.88	13.88	National Semiconductor	25.88	1.88	3.8
TXN	70.00	40.50	Texas Instruments	70.00	4.00	6.1
VLSI	69.25	10.38	VLSI Technology	16.00	-1.63	-9.2
XLNX	46.50	24.88	Xilinx	60.75	0.88	3.4
ZLG	40.88	14.88	Zilog Inc	27.63	1.00	0.8
APCC	31.50	3.88	American Power Conversion	26.88	2.00	6.9
ADPT	88.88	17.50	Adaptec Inc (H)	61.88	0.18	0.4
CBEX	3.63	1.88	Cambex Corp.	3.63	-0.13	-9.1
CREAF	12.69	3.88	Creative Technology Ltd. (H)	12.33	0.48	3.8
RACE	24.88	3.75	Data Race Inc	15.60	3.35	15.9
DEW	10.63	4.13	Dataram Corp	8.31	-0.51	-8.2
EMC	39.80	16.50	EMC Corp	35.88	1.88	-5.0
EMLX	21.88	3.00	Emulex Corp.	18.25	1.50	8.8
ESCC	29.88	19.50	Evans and Sutherland	24.00	0.63	2.7
EXBT	32.75	9.50	Exabyte	10.75	0.00	7.8
ISLF	4.13	1.00	Intelligent Info. Systems	2.25	-0.25	10.0
IOM	88.13	6.88	Iomega Corp	18.25	1.88	13.5
IPLS	8.25	3.25	IPL Systems Inc	1.75	0.88	3.7
KMAG	37.00	17.88	Komag Inc	28.75	-0.13	-0.4
MTSI	69.75	33.50	MicroTouch Systems Inc	26.25	1.88	-6.7
PEAK	20.00	10.13	Peak Technology Group	11.50	-0.13	-1.1
PNCL	18.69	3.00	Pinnacle Micro Inc	5.38	0.88	11.5
AQM	8.75	3.75	QMS Inc	8.50	-0.13	-2.2
QNTM	34.00	10.88	Quantum Corp	32.31	0.94	3.0
RDUS	4.88	0.34	Radius Inc (L)	0.44	0.00	0.0
SEG	80.00	18.17	Seagate Technology (H)	47.88	-0.50	3.0
STK	53.83	34.88	Storage Technology (H)	57.00	0.00	0.0
STLC	8.75	0.63	StreamLogic Corp.	8.12	-0.03	-0.2
TEK	52.25	29.75	Tektronix Inc.	49.75	-0.23	-0.8
WDC	75.88	17.00	Western Digital Corp	68.23	1.63	0.3
XRX	59.75	39.00	Xerox Corp (H)	58.50	1.00	1.7
AMSY	37.78	50.00	American Mgmt. Systems	22.25	0.25	1.1
ANLY	80.50	14.00	Analysts Int'l	27.50	-0.75	-8.8
AUD	45.75	35.63	Auto Data Processing	42.00	-2.50	-5.6
BDMI	61.88	88.00	BDM International Inc	59.50	-0.50	-0.9
CATP	37.25	14.75	Cambridge Tech. Partners	32.75	0.13	0.4
CEN	54.88	88.23	Ceridian Corp (L)	57.88	-0.83	-1.6
CDO	33.00	19.88	Comdisco Inc.	31.88	-0.38	-4.3
CHRZ	34.88	15.88	Computer Horizons	34.50	-0.50	-1.4
CSC	88.50	60.13	Computer Sciences	32.50	-0.75	-6.3
TSK	47.50	17.00	Computer Task Group	43.88	-2.13	-4.3
CPU	88.88	7.88	CompUSA Inc	17.88	-0.63	-3.3
CDAT	88.63	12.75	Computer Data Systems Inc	13.25	5.00	-22.5
EGGS	13.88	4.75	Egghead Discount Software	5.60	0.44	8.5
EDS	69.00	80.75	Electronic Data Systems Corp	46.63	-2.13	-4.4
INAC	88.63	14.63	Inacom Corp	32.00	-0.88	-1.8
INEL	11.50	6.88	Intelligent Electronics	5.88	-3.75	-49.2
KEA	34.88	10.25	Keane Inc	29.88	-2.00	3.7
MICA	25.00	7.50	MicroAge Inc.	21.50	0.44	0.1
PAYX	88.63	33.15	Paychex	43.50	-3.09	-7.2
PMS	55.88	63.13	Policy Management Sys.	43.13	-2.13	-4.7
REY	28.23	18.75	Reynolds and Reynolds	26.88	0.08	0.4
SCBI	60.50	14.44	SCB Computer Tech. Inc	18.25	0.00	2.8
SEIC	29.88	17.75	SEI Corp	20.25	-0.63	-8.0
SMED	72.13	88.25	Shared Medical Systems	48.88	-1.50	-8.2
SSPE	33.88	17.75	Software Spectrum Inc.	33.88	2.25	7.3
VST	29.75	8.88	VanStar Corp	15.88	-2.38	-13.8
SNDT	47.88	27.63	SunGard Data Systems	37.88	-0.88	-2.3

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Virus fixes will trail Office 97

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ready next month.

Meanwhile, Office 97 users aren't totally unprotected. Microsoft built in code to scan for about 10 of the best-known macro viruses, such as Concept and Wazzu.

So they won't be converted to the Office 97 format if an infected document is opened.

Office 97 also warns users if a document cootains any macro at all. But that warning alone won't distinguish between a legitimate, benign macro and a virus macro that causes trouble.

Some existing, less-common viruses may be automatically converted to the Office 97 macro format. Most observers said it is only a matter of time before hackers create all-new viruses in Office 97's Visual Basic for Applications (VBA) format.

Microsoft admits the company goofed by not releasing key information about the VBA macro format until the day of Office 97's formal release. That meant most third-party antivirus software wouldn't be ready at rollout.

"We need to work better with the [antivirus] community," said Tim Lebel, Office product manager at Microsoft. "We should have the solutions ready the same day [as the rollout] next time."

Vendor	Date
Dr. Solomon's	Feb. 20
IBM	AntiVirus 2.5.2 to be "widely available" in mid-February
Intel	Late January or early February
McAfee	Q1
On Technology	Feb. 28
Sophos	No release date, but a version is planned
Symantec	March 1
Trend Micro	Mid-February

Only IBM claimed to have an antivirus product, AntiVirus 2.5.2, ready on the day Office 97 rolled out. But it isn't slated to be widely available until mid-February, IBM officials said.

Several early Office 97 adopters didn't seem too concerned by the virus threat. "It's not a high-profile issue among users," said Olav Hanrath, technical coordinator at Ontario Hydro International, Inc. in Toronto. The firm has 22,000 employees and has been hit by the Concept virus in the past. "It's seen as a nuisance," Hanrath said.

But officials at other organizations that have been burned by macro viruses said they will feel better when they know Office 97 files will be screened.

At *The San Francisco Bay Guardian*, a weekly newspaper where the Wazzu macro virus set back a tight publishing schedule almost two days, systems manager Bayo Omololu said he wasn't planning to move to Office 97 for a few months anyway.

But after hearing about the delay in antivirus software, Omololu said he was sure it was worthwhile to wait. "We've been through [virus infection] once," he said. "I'm not willing to go through it again."

Liberty Financial breaks Web ground

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mail-order merchandiser, this month launched a personalized version of its folksy Andy's Garage site, offering discount goods such as bedding and consumer electronics. Like Liberty Financial's site, the Fingerhut site uses customization software from BroadVision, Inc. in Los Altos, Calif.

Visitors to Andy's Garage with an interest in sports will start seeing a preponderance of sporting goods on that site, while visitors with an interest in housewares will see fewer sporting goods and more towels and kitchen gadgets.

For security, Liberty Financial will rely on "digital certificate" technologies from a business unit of BBN Corp. in Cambridge, Mass. Visitors who register for the site will receive an encrypted digital "key," information encrypted in software that users will be required to present each time they visit the site to confirm who they are.

Once set up, the process of managing the keys is handled entirely by the software; it is nearly invisible to users.

PUSHING THE ENVELOPE

Liberty Financial's security features also appear to be cutting-edge. Digital certificate technology has been widely discussed, but it too hasn't been implemented in large-scale Internet commerce. Other bank electronic commerce sites on the Internet, such as Wells Fargo & Co. and Bank of America, rely on password protection.

Digital certificates offer a higher degree of protection, said security consultant Winn Schwartau, president of Interpact, Inc. in Seminole, Fla.

"Certificate technology can help you make absolute identification of who's who," Schwartau said. "If you're a bank, you really, really want to know who's at the other end of that keyboard."

Boston-based Liberty Financial controls $47 billion in assets for 1.4 million institutional and commercial investors. Its operating companies include Keyport Life Insurance Co., Stein Roe & Farnham, Inc. and Liberty Asset Management Co.

AOL draws legal fire for monthly service mayhem

By Stewart Deck

TWENTY STATE attorneys general called America Online on the carpet last week, demanding to know how the company plans to address complaints from users who can't connect to the online service because of busy signals.

The state representatives met in Chicago with AOL to try to "provide some relief to AOL customers who feel the [provider] isn't living up to its pledge to provide unlimited monthly service," said Lori Corral, a spokeswoman for the Illinois attorney general's office.

The states are also concerned that AOL has continued to advertise and sign up new customers even though current subscribers are loudly complaining that they can't connect to the service.

Jack Norris, Florida's chief of special prosecutions, said the discussions were "frank and substantial," but nothing was resolved.

"AOL is on a fast track to solve the problems, and [the states] are on a fast track to make sure they get them solved," Norris said.

Janine Dunne, an AOL spokeswoman, said the provider hopes to "work this out without litigation."

L.A. County turns to IT

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International Corp. and First Chicago NBD Corp. But for all those dollars, the county's 38 departments are a hodgepodge of fragmented, poorly integrated systems.

FIRST CIO

The need for cohesion in the county's information systems operations is a major reason the county has just hired Jon Fullinwider as its first-ever chief information officer.

During his eight-plus years as director of information services for San Diego County, Fullinwider, 50, spearheaded a program to connect disparate systems at 58 agencies while reducing costs and improving service.

PUBLIC SECTOR

Fullinwider helped to reduce San Diego County's IS budget from $40 million to $29 million by the time he left last month, thanks to IT standardization and the outsourcing of functions such as its network management services, which went to GTE Corp. last year.

TANGLED WEB

In his first days on the Los Angeles County job last week, Fullinwider found a tangle of Ethernet and IBM Token Ring networks, and a maze of twisted-pair wiring that runs through his office building.

"When you're talking about IT spending in the range of a Fortune 50 company, standardization is something that clearly needs to be addressed," Fullinwider said. He previously spent 12 years in different IS management positions at Rockwell International.

Public-sector pundits said many municipalities are recruiting and hiring CIOs to bring cohesion to their splintered operations.

"There's a growing trend toward standardization and having someone with [IT] overnight," said Meghan Cotter, an analyst in the state and local government practice at Ga Research, Inc. in Mountain View, Calif.

Fullinwider, who heads an IS staff of nearly 2,700, last year was asked by the county's board of supervisors to help review some 300 resumes for the CIO opening.

When asked by the board if he knew of any other potential candidates, Fullinwider stepped forward himself.

"I saw it as a tremendous opportunity. It's the largest county in the country, and I love these types of challenges," Fullinwider said.

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COMMENTARY

Why the world should go easy on AOL

David Coursey

America Online is back in the news, and people are upset. I know this because the consumer reporter on the local trash-TV news show solicited letters of complaint from viewers, bound them into two 300-page volumes and shipped them to Steve Case, chairman and CEO of America Online.

I wish people would give AOL a break. I'm as tired of the commotion as I am of the busy signals. I rather like AOL, thank you. I've met people on AOL who later became important to my business. When I didn't have an electronic-mail server of my own, AOL E-mail was my connection to the world. And today, when I can't get a file across the Internet, I can always get it through AOL in one piece.

AOL is a big target, so it's easy for people to kick. The service is decidedly mass-market and occasionally downright low-brow. There should probably be a law against all those disks AOL has sent out. (Oo the other hand, they're easy to erase, and a disk is a disk.) Others point to the creative bookkeeping AOL used to engage in. And yes, this isn't even the first time AOL has suffered capacity problems.

But this time, AOL has problems for all the right reasons, having been hammered by demand for its new flat-rate service. Is it fair to beat on a company that in a few years has reduced its fees from $10 per hour to less than $20 per month, all while adding scores of new services and attractions?

I think we like complaining about AOL so much — and I whine with the best of them — because the service is something so many of us (eight million and counting) have in common.

For many, AOL is the first step into the online world. Those disks most of us find so obnoxious have brought millions of people to the Internet.

When I have an Internet-illiterate friend who wants to get online, AOL is always my first recommendation. It's easy to set up and offers a lot for the money, and I know my friend will have a decent first experience. Try that with CompuServe or The Microsoft Network.

AOL is also a vibrant community. Yes, there are aspects of this I hope will change — anonymity causes people to behave in strange ways — but AOL provides a valuable place for people to meet and share ideas.

Some argue politics in chat rooms, others play Wall Street and still others join online clubs. AOL is a global neighborhood and is at least a small step toward healing a world in which people increasingly feel isolated and threatened.

I have no doubt AOL will solve its problems as quickly as possible. It can't afford to do otherwise, given what it costs for AOL to find a new customer — more than $200, by some estimates.

Case understands this better than anyone, so he's taken money that would have gone into promotion and is plowing it into infrastructure — an extra $100 million on top of the $250 million already budgeted. Even spread over eight million members, that's a lot of money.

So I plan to do my part. I'll honor Case's request and try to use the service less during prime time until things calm down. And I'll do more of my Web surfing on the LAN at the office rather than on AOL at home.

But making too big a deal out of a temporary problem only frightens people away. And these are the very people — our parents, siblings, aunts, uncles — we need to bring online if our world is to become a truly connected community.

Coursey is editor and publisher of "coursey.com," an online newsletter at www.coursey.com. His E-mail address is david@coursey.com.

Newsgroups: An alternative for the Web-weary

Steve Ulfelder

Here we are, right smack in the middle of the Information Age, and guess what? The helmsmen of this era have had it up to here with information. IS executives, overrun by data, want less quantity and more quality. A group of CIOs made that plain during a recent meeting with several *Computerworld* editors.

These CIOs face a stack of weekly trade and business magazines and the glut of information flowing from the Internet. One CIO says he enjoys business travel specifically because he can work his way through a stack of publications.

The rise of the Web and intelligent software agents compound the onslaught and introduce the fear that you'll miss a key article or paper because you didn't use the right keywords. Tossing magazines without even looking at them or ignoring a freebie online news service is like not playing your regular lottery oumber for a night: Odda are you'd get away with it — but if you didn't, boy would you feel rotten.

Informatioo overload is a problem for all of business, but it comes full circle for the IS organization. Why? Because IS' job is to provide not just more information for end users and the enterprise, but better information. Information that is relevant, sorted and convenient.

With that in mind, there are several ways to make the most of your information-gathering time.

First, get rid of the mutts. Just because a publication targets your profession doesn't mean it's good. If a data provider — be it a newsletter, magazine or online service — doesn't come up with at least one story per issue that hits you right between the eyes, drop it. It's also helpful to form good habits. One of the CIOs at the recent meeting has an unvarying coffee/E-mail/newspaper routine that works for him. Why not add magazine skimming and Web surfing to that schedule?

But the Web isn't for everybody. That was another strong message from the CIOs. Several complained that the flickering light of the monitor makes it difficult to look at for any length of time.

The outre layouts, colors and fonts favored by many Webzines exacerbate this problem.

If you want information online, Usenet newsgroups are an underrated source.

Because they date back to the pre-Web Internet, newsgroups have lost some cachet, but that's part of their appeal. You tend to find serious, focused users on the professionally oriented newsgroups. There is a group for every sliver of information technology, no matter how specialized.

Because the contributors are all peers, a collegial atmosphere predominates. Every group has its share of spammers, hucksters and blowhards, but one of the joys of the Internet is that these folks are exposed and ridiculed mercilessly. You don't have to hang around a group long to figure out who's worth listening to. And once you do, you can create a "kill file" that filters out a thread or poster you have no interest in.

Newsgroups are easier oo the eye than your average Web aite, too. Configure the font of your choice, in the size of your choice (in Netscape Navigator, use the Options/Mail and News Preferences menu), and you're off. You're not at the mercy of a 19-year-old graphic artist's whims.

There are dozens of places to find out more about newsgroups; a good primer is www.dejanews.com/help/dnusenet_help.html.

The Web has made Usenet newsgroups much easier to use; your Web browser makes a friendly front end for newsgroup-reading. It's a good way to find information without developing eye strain. Just don't let that stack of magazines fall on you while you're online.

Ulfelder is Computerworld's senior editor, In Depth. His Internet address is steve_ulfelder@cw.com.

NEWS

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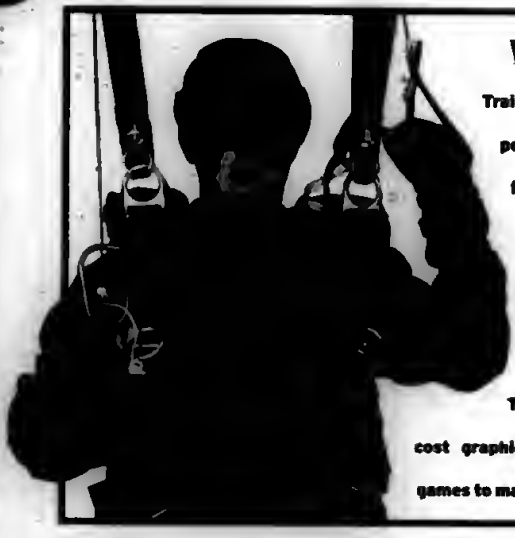
Dispatches & pages from the fringes of the electronic frontier



VIRTUAL CHUTING

Training for parachute missions is expensive and hazardous when actual flights are involved. So four U.S. Marine Corps elite parachute units have turned to a virtual-reality simulator developed by Systems Technology in Hawthorne, Calif. The PC system uses the same low-cost graphics boards found in video arcade games to make the terrain and scenes realistic.

Bun lovial

It had to happen: A Web site about the cinnamon bun that is said to resemble Mother Teresa went online this month (www.qecmedia.com/nunbun/). Naturally, you can order souvenirs such as T-shirts and combination bookmarks/prayer cards. Despite such crass merchandising, the Nashville coffee shop employees who "discovered" the bun aren't above parodying the whole thing. Their marketing company is called Global Pastry Management; they refer to themselves as bun manager/promoters, and they post messages from critics who label them "sad, sick people." But our favorite message said, the bun "looks more like Abe Vigoda in a hooded sweatshirt." — *Craig Stedman*

Geek sites

Finding the "cool" Web site of the day is easy. But for fascinatingly dull technical information, you need the Geek Site of the Day (www.owlnet.rice.edu/~indigo/gsotd/). It has links to Geek Chic, the Macintosh Portable Page, the Multics Information Page, Computer Science Jeopardy, Solving Rubik's Cube Using Algorithms, Stephen Hawking's home page, A Girl's Guide to Geek Guys and the online Nerdity Test.

DETECTIVES ARMED with Crime Scene software from Graphic Data Systems in Englewood, Colo., can log evidence and suspects, develop chronologies, reconstruct crime scenes and satisfy reporting requirements, the vendor says. Modern gumshoes can also add digital photos and audio or video clips to the investigation's file. The Windows package costs $2,000.

MICROSOFT CZAR Bill Gates calls the Microsoft team working on voice recognition software the "wreck a nice beach" group, according to a recent *Time* profile. Those are the words that appear on the screen when somebody says the phrase "recognize speech" into the system. — *Matt Hamblen*

Slip your notebook under the NoteBoard from Darwin Keyboards in San Francisco to get a full-size keyboard without a docking station

■ Send your alt cw contributions to mbetts@cw.com. If your item is used, you'll receive a cool T-shirt.

Inside Lines

Here we go again

A recent article in a U.K.-based newsletter triggered a fresh round of speculation about a possible takeover of Digital by Compaq. Similar rumors have been making the rounds for nearly a year. Sources at both companies acknowledged the rumors but dismissed them as pure speculation.

Could have named it Be-Tax

Deloitte & Touche this week plans to launch NetDox, Inc., an electronic-commerce partnership. NetDox was designed as a sort of combined notary public and document-shipping service for the Internet. Its products will ship next summer.

It will be one of several companies that manage "digital signatures" to authenticate senders' identities. The company also will offer a service to certify that documents have been sent electronically and not altered in transit.

Virtual business trip

Lotus this week will offer users a way to attend its annual Lotusphere conference without really being there. Virtual Lotusphere will allow users to surf to www.lotusphere.com to see presentation materials, participate in discussions with Lotus representatives and get a virtual tour of the product exposition.

Tivoli takes Notes

Also at Lotusphere, Tivoli Systems will unwrap management software tailored to the servers and functions of Notes. A similar tool kit for managing Powersoft PowerBuilder applications will ship this quarter. The goal is to help administrators deploy and monitor vital business functions through an application-specific interface.

To market, to market

To the amusement of some analysts, sources say Digital is creating a software division to market application-development tools for Intel platforms. TracePoint Technologies, which is supposed to debut late next month, initially will sell HiProf, a suite of performance tools targeted at 32-bit Visual C++ applications for Windows. Silicon Graphics, meanwhile, will release a hardware product line today that will round off a set of multimedia-related offerings. The products are expected to sport three-dimensional features.

The Citi never sleeps

Citibank staffers say the New York-based bank has narrowed down the field of outsourcing candidates eligible to run its Global Relationship Bank IS operations to Electronic Data Systems and IBM. Citibank, currently in the "due-diligence" phase of the selection process, is expected to select a vendor by July. The move is expected to affect 900 to 1,500 IS staffers.

Blame it on the weather

A note on Microsoft's Web page in the Exchange Server section updates users with the following statement: "We're in the process of shipping the [Exchange 5.0] betas. Due to weather conditions in the Seattle area, the shipments were delayed by a couple of weeks. Thank you for your patience."

Woke my senior management . . . please. Among the better speakers at last week's Data Warehousing Institute conference in San Diego were a few experienced warehouse managers who dispensed some trenchant advice on how to deal with senior management: carefully, of course. One noted that her warehouse team chatted up the project's value so much that the company's executives "are starting to brag about us and now have forced us into a hard-and-fast delivery date." Another said executives looking to get answers to business questions out of a data warehouse "are like a small child: They always want to know why. Why, why, why?" You can send your management or news tips to news editor Patricia Keefe by calling (508) 820-8183 or via E-mail at patricia_keefe@cw.com.

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*Samsung contracted Lantum Computer Services, San Jose, Calif., (Jason Cheng, (408) 321-3400) to conduct an independent benchmark study of the effects of memory in PCs running either Windows 95 or Windows NT 4.0. The Ziff Davis Winstone 32 Benchmark standard was selected to test both operating systems. Kingston Technology Company, 17600 Newhope Street, Fountain Valley, CA 92708 USA, (714) 435-2600, Fax (714) 435-2699. © 1996 Kingston Technology Company. All rights reserved. Kingston is a registered trademark and Computing Without Limits is a trademark of Kingston Technology Company. Microsoft, Windows, and Windows NT are registered trademarks of Microsoft Corporation. All other trademarks are the property of their respective owners.